Open Research Online

The Open University's repository of research publications
and other research outputs

Fan Industry of Pakistan: Growth Dynamics of Small, Medium and Large Enterprises

Other

How to cite:

Wahga, Aqueel Imtiaz; Rahim, Eric; Aftab, Khalid; Ahson, Uzair and Aslam, Raees (2010). Fan Industry of Pakistan: Growth Dynamics of Small, Medium and Large Enterprises. Allied Press Pvt. Limited, 26 Shahrah-e-Quaid-e-Azam, Lahore, Pakistan, Pakistan.

For guidance on citations see FAQs.

© [not recorded]

https://creativecommons.org/licenses/by-nc-nd/4.0/

Version: Accepted Manuscript

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data policy on reuse of materials please consult the policies page.

oro.open.ac.uk

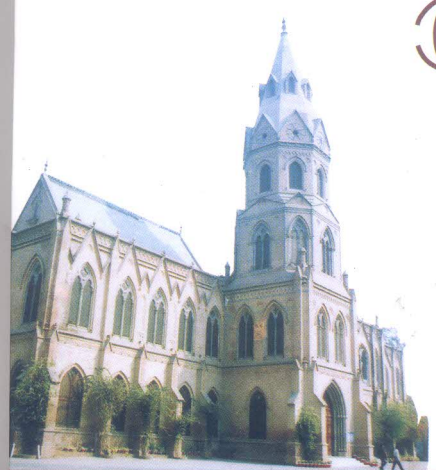
Fan Industry of Pakistan

Growth Dynamics of Small, Medium & Large Enterprises

GCU Publication
in collaboration with
Strathclyde University

GCU

University of Strathclyde



Fan Industry of Pakistan

Growth Dynamics of Small, Medium & Large Enterprises

A Research Study

by

The Department of Economics, GC University, Lahore, Pakistan

in collaboration with

The Department of Economics, Strathclyde University, Glasgow, UK

under

Joint Higher Education Links Programme [Phase-II]

of

Higher Education Commission of Pakistan & the British Council

[2007-2009]

GC University, Lahore

University of Strathclyde

Department of Economics

GC University Lahore, Pakistan

Lower Mall
1 Katchery Road, Lahore
Pakistan
54000
Tel: +92-423-111-000-010
Fax:+92-429-921 3337
www.gcu.edu.pk

Department of Economics

University of Strathclyde, Glasgow, UK

Sir William Duncan Building
130 Rottenrow
G4 0GE Glasgow
United Kingdom
Tel: +44-141-548 3961
Fax:+44-141-548 4445
www.strath.ac.uk

Copyright: All rights reserved. No part of this research report may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage or retrieval systems, without permission in writing from the publisher.

Published by: **Department of Economics, GC University, Lahore, Pakistan**

Printed by: **Allied Press (Pvt.) Limited**
26-Shahrah-e-Quaid-e-Azam,
Lahore - Pakistan.

Message of GCU Link Coordinator, Pakistan

For some time now researchers have been engrossed in reappraising the challenges that SMEs of developing countries face in an era of globalisation. Central to these enquiries is the question of how to improve prospects of their survival in an increasingly competitive environment. Only a few have attempted to identify the critical factors that promote growth of enterprises and even allow some businesses to leapfrog. This Report attempts to explore this important aspect of SMEs with the help of primary data of fan making firms of Pakistan.

As is well known, economic growth is sustained and smooth where the industrial activities are linked with the specialisation of the individual areas. Industries like fan making in Pakistan evolve without a break in a continuity, from crafts related to other-related activities and gradually to advanced technology-based activities.

Some of the facilitating factors identified by this study are access to capital and other inputs, technology, availability of skills, organizational support and export oriented policies. But nothing is found to be of greater significance than the entrepreneurial initiatives of the owners/managers of SMEs which have a direct bearing on the growth-orientation of individual enterprises. Thus 'growth-orientedness' of firms seems to foreshadow their subsequent growth performance within the industry. I hope that this Report will be equally well received by the academicians and policy makers.

As a Link-Coordinator, Pakistan I am very pleased with the excellent outcomes of the second GCU-Strathclyde Link (2007-2009) involving the Economics Departments of the two universities funded by the Higher Education Commission of Pakistan and administered by the British Council. This project generated many productive activities which culminated in a

research report: Fan Industry of Pakistan Growth Dynamics of Small, Medium & Large Enterprises.

I believe the findings of this report and deliberations of participants of this workshop and other seminars and workshops held earlier will generate interest for further research in the working of SMEs, particularly in the developing countries.

This work would not have been possible without the keen interest of Prof. Kim Swales the Link Coordinator, UK and the insight of Dr. Eric Rahim, Link Co-Coordinator, UK. Special appreciation is due to the GCU team of researchers who worked hard under its leader Aqueel Imtiaz Wahga, Assistant Professor in Economics, Assistant Link Coordinator, Pakistan.

Mr. Mark Stephens, the Director British Council, Lahore and his team of dedicated colleagues, in particular Ms. Uzma Siddiqi provided wonderful support during this project.

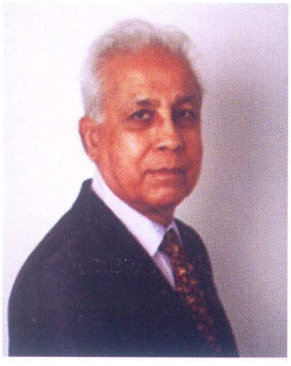
We are thankful to them.

Prof. Khalid Aftab

GC University, Lahore
Pakistan

28th January 2010

Message of Link Co-Coordinator, UK



As the Co-Coordinator at the Strathclyde end of the Link Programme, it gives me great pleasure to commend this report for academic and public discussion. The report Fan Industry of Pakistan: Growth Dynamics of Small, Medium & Large Enterprises was prepared under the leadership of Professor Khalid Aftab, with Aqueel Imtiaz Wahga playing a leading role in the collection of field data. We at Strathclyde University were glad to be able to participate in the research leading to this report. During the three-year duration of the Link Programme now ending, four members of our Economics Department (including head of the department) visited Lahore. During these visits, among other things, extensive discussions on the progress of the research were held. I am pleased to say that we from Strathclyde benefited as much, if not more, from these discussions as our Lahore friends. It is also fair to say that the main burden of authorship of the report fell on the shoulders of the Lahore team.

I have no doubt that the report will receive serious attention from academics, relevant government departments and other institutions and NGOs interested in the development of Small and Medium Enterprises (SMEs). The importance of SMEs, both in developed and developing countries, is widely recognised. They are major generators of employment and provide a significant entry point to the economy of entrepreneurial talent and individual, personal savings. The SME segment of the Fan Industry in Pakistan is typical of this sector. It provides a large volume of employment in Punjab, particularly in Gujranwala and Gujrat and generates a significant quantity of savings for investment in the industry.

The data which was collected by GCU research workers through numerous field visits will, I have no doubt, be of considerable interest to other researchers in the field and institutions that have interest in the development of SMEs.

The present study is the outcome of the second phase of the cooperation between the GCU and Strathclyde economics departments the phase that is now ending. The first phase of our cooperation completed three years ago (I recall) resulted in a report on 'Women Entrepreneurs of Lahore', a report that generated considerable interest in Pakistan and beyond. The fan-making study has suggested a new, interesting area of further research. A number of dynamic fan-making firms have now diversified into motor-bike manufacturing. This important development provides an interesting opportunity for continuing the cooperation between our two institutions.

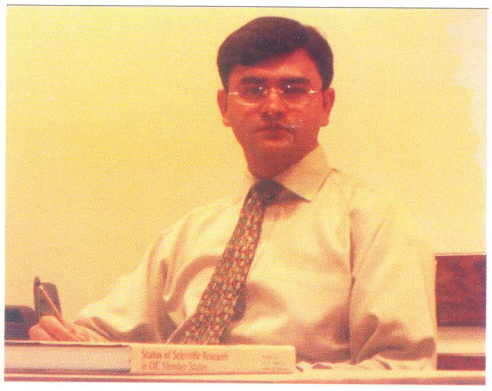
Finally, I wish to thank GCU for all the hospitality and friendship that Strathclyde visitors to Lahore have always received.

Eric Rahim

University of Strathclyde, Glasgow
UK

28th January 2010

Message of GCU Assistant Link Coordinator, Pakistan



SMEs, successfully operating as generator of economic activity at micro level, have gained greater importance in any economy. They constitute a significant portion of the industrial landscape both of developed and developing economies. This sector has been much researched in developed economies as compared to the developing economies which draws attention of researchers.

The research report 'Fan Industry of Pakistan: Growth Dynamics of Small, Medium and Large Enterprises', is a step towards this direction. This research report is a major outcome of three year higher education link between GCU, Lahore and Strathclyde University, Glasgow (2007-09); under the auspices of the British Council and Higher Education Commission, Pakistan.

The research carries findings on the characteristics of fan making firms and has evaluated various aspects of entrepreneurs, firms, workers and of overall industry. Apart form the development of a construct 'sizefirm' representing the small, medium and large firms of fan industry, 'Growth Orientation' of firms has been determined to measure and analyze the entrepreneurial intentions to set the pace of the industry. The study has generated a rich data set on various aspects of the industry by visiting fan making firms in the two major cities of Punjab province (Gujranwalla and Gujrat) and some other cities of Punjab and Sindh province as well. The study suggests that more research is needed to develop precise measurement methods to analyze the performance of firms to reduce the element of subjectivity.

This all has been possible with the continuous support of Prof. Khalid Aftab (Link Coordinator, Pakistan) and Dr. Eric Rahim (Link Co-Coordinator, UK). They motivated me and encouraged me at each and every stage

of research and facilitated me to refine the report bit by bit. I have learned a lot from these great academicians. I owe them a lot.

I take my hat off to thank the entrepreneurs of the fan industry for their cooperation for sharing useful and in depth information which helped us to present a picture of the industry in a better way.

I also want to thank Mr. Uzair Ahson (Assistant Professor of Economics, GCU Lahore) who was always around to have discussions to refine the research findings. Mr. Raees Aslam (a student of B.A. Hons in Economics, GCU Lahore) deserves praise as he actively participated in the field activities and helped a lot in contacting the entrepreneurs. He has been of great help in data coding stage of the research as well.

I would also like to thank the team of the British Council especially Ms. Uzma Siddiqi (Projects Officer, the British Council Lahore), who has been of great support throughout this link phase.

Finally, special thanks are extended to the Department of Economics, GC University, Lahore for supporting the link in great spirit and make it a great success.

Aqueel Imtiaz Wahga

GC University, Lahore
Pakistan

28th January 2010

ACKNOWLEDGMENTS

This research report is the one of the outcomes of the three year Higher Education Links Programme (Phase II) started in 2007. The link brought together the Economics Departments of GC University, Lahore (Pakistan) and the University of Strathclyde, Glasgow (UK). The main purpose of this link was to build and strengthen the institutional capacity of the Department of Economics, GC University Lahore to conduct survey based researches related with Small and Medium Enterprises in Pakistan.

Publication of this research report 'Fan Industry of Pakistan' required well-coordinated and meaningful efforts from various quarters. The research team wishes to gratefully acknowledge, through these lines, all those individuals and organizations who contributed to the research activities through their continuous support and inputs.

The research team is grateful to Higher Education Commission, Pakistan for funding the link project, and the British Council Pakistan for managing the research related activities including the field surveys, faculty exchange visits, workshops, and publications. Their valued efforts helped the research team to carry out the research project and related activities in true letter and spirit.

The information and data collection about the fan making firms could have not been possible without the cooperation of the respondents. The research team is indebted to all the owners of respondent firms (listed in Annex III), for sharing with us valuable information and insights about the dynamics of fan making firms of Pakistan. It is largely because of their active participation that we were able to collect data and analyse it for research purposes.

We would also like to appreciate the services provided by office of the Registrar, Director Facilities, and Chief Librarian GCU for helping arrange various activities of the link. Thanks are also extended to the Chairperson, Department of Economics and the faculty members, and office staff who directly and indirectly helped the research team through their incessant and timely inputs.

Last but not the least, the active support and involvement of the Economics Department, Strathclyde University (UK) is highly appreciated.

We thank you all.

Research Team

28th January 2010

CONTRIBUTORS

Khalid Aftab, Link Coordinator of GCU-Strathclyde University, Link (2007-09), is a renowned economist and 1st Vice Chancellor of GC University, Lahore, Pakistan. He is Ph.D. in Economics from University of Strathclyde, UK. His area of specialization is Development of Small Enterprises and Entrepreneurship. He has extensive teaching experience of more than 30 years at postgraduate level in various public sector institutions. He has also taught in the University of Strathclyde, Glasgow. He is a member of a number of national and provincial committees and boards of government. He has also served as a consultant to UNDP, ILO, UNIDO and several other regional and national organizations. Dr. Aftab has many academic publications and reports to his credit. He has published his work in various journals and produced a large number of research papers, conference papers and articles. In recognition of his exceptional contributions to education in Pakistan, he has been awarded highly prestigious civil awards of Pride of Performance (2002), Aizaz-e-Fazilat (1994 & 2000) from the Government of Pakistan and Citizen Award for Excellence in Public Service and Enterprise (2002).

Eric Rahim, Link Co-Coordinator of GCU-Strathclyde University Link (2007-09), is an honorary and visiting member of staff in the Department of Economics, University of Strathclyde, Glasgow, UK. He studied at Foreman Christian College, Lahore and University College London. From the latter institution he obtained the degrees of BSc (Econ) and PhD on Kalecki's Theory of Income Distribution. In the 1970s he moved sideways from the Department of Economics to the David Livingstone Institute of Development Studies where he was Director of the project on the choice of technique in developing countries. This project generated a seven-volume series of industry studies, published by the Scottish Academic Press, of which he was the General Director. During the late 1980s and early 90s Eric was a member of a team that produced the United National annual economic survey of Asia and the Pacific. He is a

former Associate Editor of the Journal of Economic Studies. Eric's current research interests include the history of economic theory and the theory of development.

Aqueel Imtiaz Wahga, Assistant Link Coordinator of GCU-Strathclyde University Link (2007-09) and leader of GCU team of researchers for this study, is Assistant Professor in the Department of Economics, GC University, Lahore, Pakistan. His areas of specialization are Entrepreneurship, Enterprise Development, Innovation and SMEs. He holds an M.Sc degree in Economics from GCU, Lahore and is currently doing his M.Phil. in Entrepreneurship and SME Management from GCU. Mr. Wahga has recently been selected under the Talented Researchers Exchange Programme of the British Council (2009) to do collaborative research work on 'Entrepreneurship, Innovation and Industrial Dynamism: Evidence from Pakistan's Economy' at the Bettany Centre for Entrepreneurial Performance and Economics, Cranfield University, UK. He has been a member of GCU Economic Journal editorial board and has also edited some researches. He actively participated in a World Bank funded study on Pak-India Intra-industry trade carried out by the Department of Economics, GCU Lahore. He has published his research work in the GCU Economic Journal. He was a member of link team of Joint Higher Education Link Programme Phase-I (2004-2007) between GCU and Cranfield University, UK. He has attended many training workshops focusing entrepreneurship, SME management and case study writing and teaching. His aspirations are to do his Ph.D. in Entrepreneurship and Enterprise Development.

Uzair Ahson is currently working as Assistant Professor of Economics at GC University, Lahore. He holds M.Phil in Economics and conducted research on Pak-India Intra-industry trade for his MPhil thesis. He is also enrolled in the PhD programme at GC University where his research relates to innovation practices of the SMEs in the Light Engineering Sector of Lahore. He has written several newspaper articles as well as research papers related with International Trade and SMEs. He has the honour of representing Pakistan in the 1st Lindau Meeting with Nobel Prize Winners in Economics in 2005 in Germany. He was the Assistant Link Coordinator of

Joint Higher Education Link Programme (2004-2007 Phase I) which initiated M.Sc. in Entrepreneurship and SME Management at GC University, Lahore. He has participated in training workshops related with Entrepreneurship and SME Management. He remains committed to provide academic input for the development of SMEs in Pakistan.

Raees Aslam, member of GCU Research Team, is a student of B.A Hons. in the Department of Economics, GCU Lahore (Session: 2006-2010). He has contributed a lot to this study in the field based activities and data coding. Having keen interest in the area of entrepreneurship and SMEs, he intends to purse his career as an academician in the field of entrepreneurship.

CONTENTS

LIST OF TABLES

EXECUTIVE SUMMERY

This research report 'Fan Industry of Pakistan: Growth Dynamics of Small, Medium and Large Enterprises' explores the various dimensions of growth dynamics of small, medium and large size firms in this specific industry. The fan industry landscape is, as typical of a developing economy, full of inter-firm resource heterogeneity and 'technological dualism', where larger, and some medium scale enterprises use more modern methods of production and business, and the small scale firms rely upon the traditional processes. Based on the information and data gathered through field surveys, this research has attempted to formally analyse the pattern and determinants of the performance of fan making firms.

The information and data comprised of various dimensions of entrepreneurial competence, business operations, skill sets, technological capabilities, as well as input-output dynamics. Starting from the development of industry specific classifications of firm sizes, based on number of workers, output range, number and types of machines, the research has analyzed various issues related with firm performance across and within firms of different sizes. Other characteristics of firms like targeted income groups, types of markets (local and/or international), outsourcing practices, product diversification, R&D practices, product testing, nature and sources of skills acquisition, technological up-gradation over time and advertisement practices have also been used for deeper and broader evaluation of industry and firm-size specific dynamics.

This research has contributed to literature in terms of its industry specific findings, and also by developing an estimate of 'growth orientation' of different sized firms and their determinants. A low-growth oriented firm is characterized by fewer intentions and actions to expand vis-à-vis a more growth oriented firm. The how and why questions of this growth orientation have been dealt with in detail. One important general finding is that firms with higher growth orientation are more active in terms of investment, technological up-gradation, certifications, and product diversification. They usually analyse key factors shaping the demand and production processes etc. formally, though with less sophisticated methods and techniques. On the other hand, low growth oriented firms lack the relevant

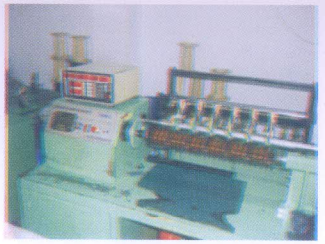
resources and hence are unable to overcome the barriers to growth. The resource heterogeneity hints towards what is often referred to as 'technological dualism' within the industry. The real challenge for any policy for technological up-gradation and also for skill development, at firm and industry levels, is to address this issue effectively. It is hoped that the further research may discover new horizons in our understanding of the SMEs in Pakistani context.

Stages of Fan Production of a Typical Firm

Raw Material

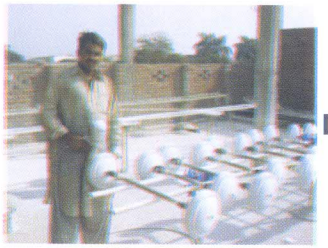
Furnacing

Machining



Winding

Fitting



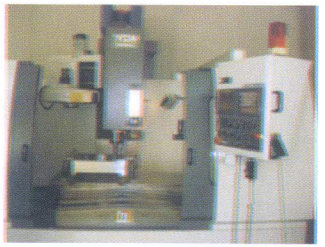
Painting

Checking

Packing

R&D Facilities of a Modern Firm

Research Lab



High-Tech. Vertical Milling Machine for Tool Making

CHAPTER 1

INTRODUCTION

1.1 Small and Medium Enterprise (SME) Sector and Economic Development

Small and Medium Enterprises (SMEs) play an important role in the process of economic development of any economy. Successful SMEs have been observed to contribute significantly in promoting economic growth, industrialization, high value added exports, foreign exchange earnings, more employment opportunities, poverty reduction and also helping reduce income inequalities. However, they can not operate in isolation from the socioeconomic and institutional environment in which the businesses have to emerge, survive and grow. It has also been observed and debated that SMEs have to collaborate with large size firms to survive and grow in the face of competitive environment. This interdependence of SMEs and large enterprises leads to further expansion of SMEs. McIntyre and Dallago (2003) have discussed that small and medium enterprise sector is not by itself capable enough to create successful economic development. It needs to be supported by the large enterprise sector as a source of inputs, a market for its outputs and also as a source of individual entrepreneurial leadership. Thus a synergetic relationship needs to be established between the SME and the large enterprise sectors, rather than thinking of a zero-sum environment where success of the small or medium can only be secured minus the large.

European Bank for Reconstruction and Development (1995) notes that, "The small and medium enterprise sector (SME) carries great hopes and great burdens in the evolution of all transitional economies. It is difficult to imagine either rising overall living standards or social peace without sustained and healthy growth of this sector. While hopes that this sector would by itself have systems-dynamizing and transformational effects have not been realized, its role in generating employment and an atmosphere of social stability is crucial."

1.2 Pakistan's Fan Industry: A Historical Perspective

Pakistan's industrial sector predominantly comprises of SMEs which serve as the backbone of the economy. Despite the presence of a large

number of SMEs operating in various segments of the economy, their contribution in achieving long term macroeconomic goals has been suboptimal. This suboptimal growth of SMEs in Pakistan is partly attributable to lack of properly designed system of incentives and supportive policy environment that could be more conducive for their growth. This is evident in the case of the fan industry also.

Pakistan's fan industry, a part of light engineering sector, is one of the oldest industries. Its origin can be traced to pre-independence time of the 1930s. In early years, the industry developed in the surroundings of Gujranwala and Gujrat. The significant element is that it flourished without any significant government or foreign support. Its existence is largely attributable to private initiative. *Mughals*, a caste predominantly engaged in metal working, having inherited competence in engineering and *Sheiks* having expertise in trade played a very important role in the development of the industry.

National Metal Works is the oldest firm belonging to Pakistan's fan industry. Its establishment can be traced in the year 1939, in Gujrat. Initially this firm, owned by Hajji Sultan Ahmad, used to make *Huqqas* (Hubble-Bubble). It engaged in making spare parts for fire arms during WWII. After WWII, the demand for fire arms fell sharply, so there was no more room left for the firm to operate in this field but to step into some other business. Hajji Sultan sent his son Hajji Mohammad Azam to Indian Metal Industry, a fan manufacturing firm of Amritsar, to learn techniques and skills in fan making. On his return, Hajji Mohammad Azam worked hard and succeeded in manufacturing fan without the help of any machinery that was used in fan manufacturing in India. Thus the first fan in Pakistan was made in Gujrat by National Metal Works and was named as S.A Fan. Abid Fan and Sultan Fan are among the oldest names of Pakistan's fan industry that were present even before 1947. Another prominent firm that emerged in Gujranwala just before the birth of Pakistan was Asia Fans. Mian Muhammad Rafique Anwar, the founder of Asia Fan, made a great contribution to the fan industry by making better quality fans. These fans used electrical steel sheet and capacitor and thus consumed less electricity. They were economical to maintain besides being more durable.

With the passage of time, number of firms kept on increasing leading to the emergence of two clusters located at Gujrat and Gujranwala. Most of them are small and medium sized firms. A few large size firms are also in this industry. All the large units operate both in domestic and international

markets while some small and medium size firms also operate in foreign markets. Besides, Gujrat and Gujranwala, some firms are operating from Lahore and Karachi as well; however, the largest concentration is found in the twin cities of Gujrat and Gujranwala. The following table gives the city-wise distribution of the number of firms, investment and employment.

Table 1.1

Fan Manufacturing Firms of Punjab

	Gujranwala	Gujrat	Total
No. of Firms	155	363	518
Investment (Thousand Rupees)	289737	1974332	2264069
Employed People	1473	6185	7658

Source: Directory of Industrial Establishments, Punjab (2006)

Total production of fans and the number of firms in the industry have increased over the years. This increasing trend can be attributed to increase in the demand of fans both in domestic and international markets. Rising population, increase in consumer's purchasing power, better standards of living, access to electricity, fast growing construction sector complimented by the tropical conditions of Pakistan and a match of weather conditions with most of the countries where Pakistani fans are exported are some significant reasons of an increase in the production of fans in Pakistan.

Table 1.2

Total Production of Fans

Years	Total Production of Fan (Units)
1999-00	717,663
2000-01	869,856
2001-02	938,373
2002-03	126,824,3
2003-04	136,163,6
2004-05	141,995,1
2005-06	145,011,2
2006-07	152,423,1
2007-08	171,119,8

Source: Federal Bureau of Statistics, Govt. of Pakistan (2007-08)

Almost 70 percent of the total reported production is done by the relatively large size units while remaining is done by the small and medium size firms. None of the established units is operating at its full capacity. The entrepreneurs running the small, medium and large size firms shared that even if the small and medium size units stop to operate the large size firms have the capacity to meet the domestic demand for fans. The figures reported in table 1.2 are official figures which when compared with the responses of the entrepreneurs showed that they were under-reported.

CHAPTER 2

THE STUDY

This research study is an outcome of the research link between the Department of Economics, GC University Lahore, Pakistan and the Department of Economics, University of Strathclyde, Glasgow, UK under the Joint Higher Education Links Programme (Phase-II) of the Higher Education Commission of Pakistan and the British Council covering the period from 2007 to 2009. Under the link **"Development of SMEs through Skill Enhancement"** the Economics Department of GC University, Lahore in collaboration with Economics Department of Strathclyde University, UK, has planned to publish two research reports focusing on the SMEs operating in Pakistan. Fan Industry of the light engineering sector has been selected as the first industry to be researched. In the second research report, the motorbike industry of Pakistan shall be the focus of the research team. Reason for the selection of these industries is that some of the fan manufacturing firms have diversified over the years into motorbike manufacturing. This makes it a very interesting case to be studied: what made and allowed the fan manufacturing firms to enter into the motorbike industry?

Why the Fan Industry? There are a host of factors due to which the fan industry has been selected for research. First, this is an industry of great potential which not only covers and meets the needs of the domestic market but is also capable enough to operate and compete in international market thus a source of foreign exchange earning for the economy. Second, the state of technology and technical skills involved in fan manufacturing range from very simple and crude methods to the use of sophisticated and computer-assisted comparatively high-tech machines thus the industry stands as a very good case of technology development and up-gradation over the years. Fan manufacturing process involves both manual and machine based technical skills and machinery involved in the production process of fan is both local and imported. Third, the fan industry of Pakistan has not been much researched from the perspective of technology acquisition and development. Fourth, the fan industry in Pakistan has flourished over the years on its own i.e. through entrepreneurs' own

initiatives because not much government support has been extended to the industry since the inception of Pakistan. Wherever the fan industry stands today credit goes to the talented entrepreneurs who have strived hard not only to create a competitive market domestically but have made the Pakistani fan competitive in the international market as well.

This all makes a researcher to think and probe how the industry is performing and how do various factors determine industrial perceptions to formulate the intentions of entrepreneurs which in turn determines the growth orientation of firms.

2.1 Objectives of the Study

Following are the major objectives of the study:

a. To identify and analyze the factors affecting the performance of fan making firms in Pakistan

b. To determine and analyze the dynamics of growth orientation of fan making firms

2.2 Methodology and Scope of the Study

The study is mainly based on primary information gathered through extensive field surveys. However, secondary sources of information have also been consulted effectively. In the beginning some visits were made to the fan manufacturing units operating in Gujranwala and Gujrat cities to have a good understanding of the nature, structure and characteristics of firms and the industry. It was followed by the development and pre-testing of a questionnaire. As a result of pre-testing, detailed discussions with the entrepreneurs and the members of link team from Pakistan and the UK, questionnaire was restructured and finalized to collect the data in much more depth and detail. Questionnaire conducted covered both qualitative and quantitative aspects of entrepreneur's profile, profile of the industry and firms, general and specific technological capabilities of firms, and the role of government and other allied agencies related to the fan industry.

Table 2.1
City-Wise Distribution of Sample Firms

City	No. of Firms Surveyed	Percentage of Total Sample
Gujrat	28	70 %
Gujranwala	10	25 %
Lahore	1	2.5 %
Karachi	1	2.5 %
Total	40	100%

Source: Authors' Survey

Table 2.2
City and Size-Wise Distribution of Sample Firms

City	Small	Medium	Large
Gujrat	15	11	2
Gujranwala	2	8	0
Lahore	0	1	0
Karachi	1	0	0
Total	18	20	02

Source: Authors' Survey

Regarding the selection of sample, convenience sampling technique has been used. The fieldwork on which the study is based was carried out in the cities of Gujrat, Gujranwala, Lahore and Karachi from mid 2007 to end 2008. Overall forty five (45) units [small, medium and large] were surveyed having varied scales of production, technological capabilities, and employment size. Five (5) firms were excluded at data coding and analysis stage because of lack of consistency and reliability in information.

Most of the units surveyed were from Gujrat city being the major cluster of fan manufacturing in Pakistan. The other sources of primary information include information gathered from the regional offices of Pakistan Electric Fan Manufacturing Association (PEFMA), Fan Development Institute (FDI) Gujrat, entrepreneurs involved in fan selling (dealers) and not in fan making and the part manufacturers (locally known as vendors). Secondary sources of information include reports, papers

and articles and the publications of Small and Medium Enterprise Development Authority (SMEDA) and Federal Bureau of Statistics, Govt. of Pakistan.

For analyzing the gathered information, Statistical Package for Social Sciences (SPSS) and Microsoft Excel have been used. Descriptive statistics have been measured to evaluate the performance of various aspects of the industry. Moreover, to determine and analyze the relationship between variables chi-square test and likelihood ratio have also been measured.

2.3 Limitations of the Study

The study as completed in this form has some limitations. Though best efforts were made to collect much detailed information but the reluctant behaviour of entrepreneurs about sharing the information was a constant challenge. Yet, it has been tried hard to collect as much correct information as possible. Suppliers of raw material and part manufacturers (locally known as vendors) were not interviewed extensively as the focus of the study was more on fan manufacturers / assemblers.

2.4 Definitional Issues

2.4.1 Defining Small and Medium Enterprises (SMEs): Some International Practices

There is not a uniform and standardized definition of Small and Medium Enterprises (SMEs) which can be applied to all the sectors and all the economies (developed and developing). SMEs are defined in different ways in various parts of the world and within a country at different times. Significant variation can be observed both in developed and developing economies on the definitional issues of SMEs as they are usually defined taking into consideration the environment, industry and the country in focus along with the sectors in which they operate i.e. production, services and trading sector. Literature reveals that SMEs are often defined by government agencies, researchers and financial institutions on the basis of following criteria:

a. Number of employees

b. Value of Productive assets (value of land and building is excluded)

c. Turnover / Sales Volume / Balance Sheet Total

In **Thailand,** SMEs are defined both on the basis of employment and capital invested. A small-sized enterprise is defined as a business entity having employment not more than 50 and with capital not exceeding 10 million baht. A medium-sized enterprise is defined as a business entity having 50 to 200 employees and capital ranging from 10 million to 100 million baht [**Sevilla**, 2000]. SME in **Korea** is defined as an entity with less than 300 employees in manufacturing sector and less than 20 employees in services sector [Sang-yirl Nam, 2005]. Definition of SME in **China** varies from industry to industry but generally SMEs are known to be those business entities with less than 100 employees. **European Commission** (recommendation 2003/361/EC) has defined a small-sized enterprise having less than 50 employees with a turnover or balance sheet total of not more than Euro 10 million. A medium-sized enterprise has been defined as, having less than 250 employees with a turnover of not more than Euro 50 million and with a balance sheet total of not more than Euro 43 million [http://www.lib.strath.ac.uk/busweb/guides/smedefine.htm]. **Canadian** SME is defined as a business entity having less than 500 employees in manufacturing sector and in services sector a firm with less than 50 employees is considered a SME [http://sbinfocanada.about.com/od/businessinfo/g/SME.htm].

In the **UK,** according to the Companies Act 2006, a small-sized enterprise is defined as business entity with turnover of not more than GBP 6.5 million, balance sheet total of not more than GBP 3.26 million and having no more than 50 employees. A medium-sized enterprise is defined as an entity with a turnover not more than GBP 25.9 million, balance sheet total of not more than GBP 12.9 million and not more than 250 employees [www.lib.strath.ac.uk/ busweb/guides/ smedefine.htm]. In **India,** a small-sized enterprise is defined as a business with total investment on plant and machinery not exceeding Rs.3 crores (US $ 750,000). A firm is considered large with investment exceeding Rs. 100 crores (US$ 25 million). Thus a medium-sized firm falls between small and large i.e. having investment more than Rs. 3 crores (US $ 750,000) and less than 100 crores (US $ 25 million) [http://www.sme.gov.eg/ english_publications/issue2_english.pdf]. In **New Zealand**, an SME is defined as a business entity with 19 or fewer employees [www.med.govt.nz/templates/MultipageDocument Page 2814.aspx].

2.4.2 SMEs as Defined by Multilateral Institutions

SMEs as defined by the multilateral institutions are summarized in Table 2.3. This criterion of defining the SMEs has been criticized on the grounds that none of these institutions has defined the minimum definition or lower limit of the categories and that these institutions do not separate the small and medium-sized firms rather lump them together in one group. This does not allow tracing and analyzing the dynamics of small and medium enterprises separately and more precisely.

Table 2.3
Multilateral Institutions Defining SMEs

Institution	Maximum No. of Employees	Max. Revenues or Turnover ($)	Maximum Assets ($)
World Bank	300	15,000,000	15,000,000
MIF – IADB	100	3,000,000	None
African Development Bank	50	None	None
Asian Development Bank	No official definition. Uses only definitions of individual national governments		
UNDP	200	None	None

Source: Gibson & Vaart (2008)

Gibson & Vaart (2008) have proposed a formula for defining SMEs which says that *"An SME is a formal enterprise with annual turnover, in US dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates"*. According to their proposed definitional criterion, SMEs can be defined as (some examples)

Table 2.4
Recent Developments in the Definitional Criterion of SMEs

Country	Turnover Range for SMEs	
	Lower Cutoff	Upper Cutoff
Brazil	82,300	8,230,000
Thailand	84,400	8,440,000
Egypt	44,100	4,410,000
Morocco	43,600	4,360,000
Pakistan	23,500	2,350,000
Bangladesh	20,900	2,090,000
Tanzania	7,300	730,000

Source: Gibson & Vaart (2008)

Their proposed criterion is an attempt to categorize the firm size in relation to the size of the per capita income. This may be a step forward to develop a standardized definition across income groups of countries. However, this definition cannot be used to distinguish between small and medium size firms.

2.4.3 SMEs as Defined by Various Agencies / Departments in Pakistan

Small and Medium Enterprises Development Authority **(SMEDA)**, which works for the promotion of SME sector in Pakistan, has defined SMEs as having up to 250 employees with paid up capital up to Rs. 25 million and annual sales up to Rs. 250 million [SME Policy of Pakistan, 2007]. According to **SME Prudential Regulations of State Bank of Pakistan,** SME is an entity, ideally not being a public limited company, which does not employee more than 250 persons in manufacturing sector and 50 persons in trade / services sector and also fulfills one of these criterions: (i) A trade service concern with total assets at cost excluding land and buildings up to Rs. 50 million. (ii) A manufacturing concern with total assets at cost excluding land and building up to Rs. 100 million. (iii) Any concern (trade, services or manufacturing) with net sales not exceeding Rs. 300 million as per latest financial statements [SBP's SME Prudential Regulations, 2004]. According to **Federal Bureau of Statistics Pakistan** (FBS) a small enterprise is an entity with less than ten (10) employees [www.smeda.org.pk/main.php?id=2]. **Punjab Small Industrial Corporation** considers a business concern as

small with fixed investment up to Rs. 20 million excluding land and building [www.smeda.org.pk/main.php?id=2]. **SME Bank** labels small and medium enterprise as having total assets of Rs. 20 million and of Rs. 100 million respectively [www.smeda.org.pk/ main.php?id=2]. **Punjab Industries Department** defines SME with fixed assets of Rs. 10 million excluding cost of land [www.smeda.org.pk/ main.php?id=2]. According to **Sindh Industries Department**, SME is an entity engaged in the business of handicrafts or manufacturing of consumer or producer goods with fixed capital investment up to Rs. 10 million excluding land and building [www.smeda.org.pk/main.php?id=2].

2.4.4 A Review of SMEs Definition for the Fan Industry

Review of literature reveals that not many researches have been conducted on exploring the dynamics of fan industry in Pakistan. A diagnostic study focusing Fan Cluster in Gujrat, Pakistan by UNIDO in collaboration with SMEDA and Export Promotion Bureau (EPB) unfolds that a firm is characterized as small with 10-15 employees complemented by 6 machines. A medium-sized firm has been characterized as having 30-75 employees and 10 machines. A large firm has been classified as having 100-250 employees and 16 machines [UNIDO, 2006].

Rana and Ghani (2004) while discussing the dynamics of outsourcing in Gujrat fan industry in Pakistan have compared the small, medium and large sized firms in terms of their size, product, market, production capacity, level of technology, and outsourcing practices. Their study focused only on one category / type of fans i.e. ceiling fans of 56-inch size, which accounts for around 50 percent of the total fan production in Pakistan. The following table summarizes their classification.

Table 2.5
SMEs as Previously Defined for the Fan Industry of Pakistan

	Large	Medium	Small
No. of Firms	4	20	200
No. of Employees	300-450 (including 200-300 seasonal workers)	30-60 (including 15-35 seasonal workers)	1-15 All seasonal workers
Fan Price	Rs. 1,000 1,100	Rs. 700 800	Rs. 650
Market	Affluent areas of large cities	Smaller cities plus non-affluent areas of larger cities	Rural areas
Branding	Well known brand names	Lesser known brand names, or names that look-alikes of well-known brands	No brand names or names that look-alikes of known brands
Power Consumption	75-90 watt	100-150 watt	150-200 watt
Design Changes	At least one new design every year	Copy successful designs in premium fans	Made to order for well established designs
Production Capacity	Over 400 K / yr.	30 to 150 K / yr.	Less than 10 K / yr.
Plastic Manufacturing Capacity	Have own plastic injection moulding machines	Use plastic parts produced in Gujranwalla	No plastic fans
Equipment	Automatic winding, Hydraulic lathes, CNC die making, and a range of testing equipment	Automatic winding, Manually operated lathes and die making	Manually operated lathes and drilling machines
Material for Rotor Armature	Imported steel sheet from Europe and Japan	Mild steel sheet imported from Eastern Europe	Drum sheet from local scrap vendors
Copper Wire	Manufactured In-house	Outsourced	Outsourced
Core Competence	Technology acquisition, brand equity, distribution	Ability to rapidly copy designs and selectively out source	Low cost / low overheads
In-house Production%	75%	20% (motor winding etc.)	None (only assembly)

Source: Rana and Ghani (2004)

2.4.5 Size of Firms as Defined in this Study

In order to meet the requirements of the study, a multidimensional definition of small, medium and large size enterprises has been developed which apart from the well known criterion i.e. number of employees, also takes into consideration the number of machines and the per annum production range along with some other characteristics of firms. The idea is not to distort already developed definition but to contribute to the literature focusing the study of SMEs. Each category (small, medium and large) is sub-divided into different stages of operation to identify and better explain the characteristics of firms operating in the fan industry of Pakistan. As it has been observed that firms even remaining within the same category grow and become distinctive and after getting mature in one category make a leap to the next category. This also helps to trace the way the firms grow within the category and across the categories. Thus keeping in view the firms' heterogeneity, firms operating in the industry have been classified as small, medium and large in the following pattern. [see Appendix-I]

2.4.5.1 A Small Size Firm

Small size category of firms has been sub-divided into three stages.

Stage-I

Firms operating in this class produce 800 - 5,000 fans per annum with not more than ten (10) machines and ten (10) employees including entrepreneur / owner.

All the employees (contracted for the whole season or hired on daily basis) are temporarily employed. Thus the concept of permanent employees is alien to the firms operating in stage-I. These firms operate only in peak season (February to July). However, all the firms do not operate for whole six months. Some operate for four months and some for five months.

Stage-II

Firms operating in this class produce 5,001 - 10,000 fans per annum with not more than twelve (12) machines and fifteen (15) employees including entrepreneur / owner.

All the employees (contracted for the whole season or hired on daily basis) are seasonal. So just like the firms operating in stage-I, the concept of permanent employees is alien to the firms operating in stage-II. These firms

operate only in peak season (February to July). However, all the firms do not operate for six months. Some operate for four months and some operate for five months. Few firms operating in this class also engage in export activities.

Stage-III

This stage has been defined as the maturity stage for small category. Firms operating in this class produce 10,001 – 20,000 fans per annum with not more than fifteen (15) machines and twenty (20) employees including entrepreneur / owner. Here all the employees are not necessarily seasonal as some firms engage permanent labour (one or two) in the form of foreman or skilled employee. These firms operate in peak season only (February to July). Some firms operating in this class also have export concerns.

Overall, small is defined as a category producing 800 to 20,000 fans per annum with not more than 20 employees (including entrepreneur / owner) and 15 machines.

Other Characteristics of Small Size Firms

According to the criterion set by this study, along with number of employees, level of production and number of machines following characteristics are identified to be held by a firm to be considered as small.

Small firms target the low income group of the market segment as they produce low quality and low price product using low quality raw material (local). The machinery and equipment used by the small firms is low-tech (manual). Small firms usually target the rural markets and generally operate within their respective province directly or through distributors (not permanent distributors) and rarely across the provinces. Some small firms also have export concerns. Small firms do not approach the financial institutions (banks) for financial support rather relies on entrepreneur's personal savings, friends and relatives. Small firms outsource almost 100 percent thus their core capability is assembling. Such a significant dependency of small firms on the part manufacturers depicts a strong case of small-small linkage. Small firms specialize only in metal products and do not have well established brand name however to attract the customers, small firms try to develop such names which look alike the medium and large firms. Regarding the design of the product small firms copy the medium and large firms as R&D activities are completely alien to the

small firms. Small firms are not well equipped with product testing labs rather use conventional / simple test meters to check the quality of the product. Semi-skilled labourers are employed by the small firms who are trained under the conventional *Ustad-Shagird* system. As far as the advertisement of the product is concerned small firms do not spend much on printing of brochures and the use of paper and print media. However, wall chalking is a common practice but that too is confined to the cities where the firms operate or at the most in one or two adjacent towns.

2.4.5.2 A Medium Size Firm

Medium-size category of firms has been sub-divided into four stages.

Stage-I

Firms falling in this class are the ones which have just been able to make a leap from small category to the medium-sized category. So these firms represent to an extent both small and medium-sized firm's characteristics but only at the initial stages of growth. Firms operating in this class produce 20,001 – 50,000 fans per annum with not more than thirty (30) machines and fifty (50) employees excluding entrepreneur / owner.

These firms engage permanent employees in the form of foreman and skilled labourers (about 5), which means sixteen (16) to forty five (45) employees are seasonal. Some of these firms operate both in peak and off seasons while others stop production in off-season. Some firms that operate in this class also export concerns.

Stage-II

Firms operating in this class produce 50,001 – 90,000 fans with not more than fifty (50) machines and ninety (90) employees excluding entrepreneur / owner.

These firms engage about twenty (20) employees as permanent which means thirty one (31) to seventy (70) shall be seasonal employees. All the firms operating in this class continue their production activities both in peak and off seasons but in off-season production falls significantly say by sixty to seventy (60-70) percent. However, due to annual repair and maintenance these firms stop operations for two to three months. These firms operate both in local and international market directly or indirectly

(entrepreneurs who are not well versed with export procedures go for indirect exports). However, some firms falling in this class; operate in local market only.

These firms start using better / high-tech machines, engage comparatively more skilled employees / labourers and better quality raw material (not all); as their focus does not remain only to increase the production capacity and level but also to raise the quality of the product. Thus both quality and price variance can be traced frequently in this category. Almost all the firms operating in this class are the multi-product firms and they manufacture both metal and plastic products.

Stage-III

Firms operating at stage-III produce 90,001 – 150,000 fans per annum with not more than ninety (90) machines and one hundred and forty (140) employees excluding entrepreneur / owner.

These firms engage about twenty five (25) employees as permanent which means sixty six (66) to one hundred and fifteen (115) shall be seasonal. All the firms falling in this class continue their production activities both in peak and off-seasons but in off-season production falls significantly (about 50 percent). However, these firms stop their operations for one or two months for repair and maintenance purposes. Moreover, these firms also export (mostly directly but entrepreneurs who are not well versed with export procedures go for indirect exports).

These firms use better / high-tech machines, high quality raw material and better-skilled labourers. These are high quality and high price firms. Moreover, all the firms operating in this class are the multi-product firms and deal in both plastic and metal fans.

Stage-IV

The last stage in medium-sized category contains firms producing 150,001 – 200,000 fans per annum with not more than one hundred and fifty (150) machines and not more than two hundred (200) employees excluding entrepreneur / owner.

These firms engage about thirty (30) employees as permanent which means one hundred and eleven (111) to one hundred and seventy (170) are seasonal. In this class high quality, high production and high price

firms operate (some examples have been identified where firms are only high production but not very high quality and high price). They use high-tech machines and therefore engage better skilled and comparatively more technical labourers.

Firms falling in this class operate both in peak and off seasons. However, in off-season production falls by almost 50 percent. These firms operate both in local and export markets. These are all multi-product firms and deal in both plastic and metal products.

Overall, medium is defined as a category producing 20,001-200,000 fans per annum with not more than 200 employees (excluding entrepreneur / owner) and 150 machines.

Other Characteristics of Medium Size Firms

This is a much diversified category producing from low quality to medium and high quality fans, using low-tech and high-tech machines and employing semi-skilled and highly skilled employees / labourers. Thus quality and price variance is very significant feature of this category. Survey has revealed that few firms falling in this category also deal in motorbikes (Stage II and Stage III but not in Stage IV).

Medium-size firms target all income groups (low, middle and high), target both rural and urban areas and almost all these firms operate across the provinces through distributors (some are permanent distributors). These firms also engage in export activities (both directly and indirectly). Outsourcing is done extensively (almost 70 – 80 percent) which gives a very good picture of small-medium and medium-medium linkages showing that growth of medium-sized firms is complemented by the small and medium-sized part manufacturers. Most of the firms falling in this category are multi-product firms and they produce both metal and plastic fans. R&D activities are mostly undertaken by the firms falling in stage III and IV. However, very few introduce their own designs as mostly large firms are followed. Some of these have well established brand names. Almost 60-70 percent firms have well-equipped test labs while rest (mostly stage-I firms) use the conventional / simple test meters. Some medium-size firms also approach the training institutions like fan development institute (FDI) in Gujrat; both for their personal training and for the training of the labourers (not a common practice). As far as the promotion of the product is

concerned, firms operating in stage I&II advertise through wall chalking and printing of brochures while firms falling in stage III and IV advertise using all means (wall chalking, printing of brochures, paper and print media). The entrepreneurs running the medium-size firms also participate in national and international exhibitions to display and promote their products.

2.4.5.3 A Large Size Firm

Large size category of firms has been subdivided into three stages

Stage-I

The first class of large category contains firms producing not more than 300,000 fans per annum with not more than two hundred (200) machines and two hundred and fifty (250) employees excluding entrepreneur / owner.

These firms engage about fifty (50) employees as permanent which means one hundred and fifty (150) to two hundred (200) are seasonal. Firms operating in this class produce high quality and high price fans. They use high-tech machines and therefore employee better skilled and comparatively more technical labourers.

Firms falling in this class operate both in peak and off seasons. However, in off-season production falls by almost 50 percent. These firms operate both in local and export markets. These are all multi-product firms and deal in both plastic and metal fans.

Stage-II

This class of large comprises of those firms who have started to expand either by targeting the local or exports markets i.e. they have expanded their customer base. These firms produce not more than 450,000 fans per annum with not more than three hundred (300) machines and three hundred and fifty (350) employees excluding entrepreneur / owner.

These firms engage about fifty (75) employees as permanent which means one hundred and seventy six (176) to two hundred and seventy five (275) are seasonal. Firms operating in this class produce high quality and high price fans. They use high-tech machines and therefore employee better skilled and comparatively more technical labourers.

Firms falling in this class operate both in peak and off seasons. However, in off-season production falls by almost 50 percent. These firms

operate both in local and export markets. These are all multi-product firms and deal in both plastic and metal fans.

Stage-III

Firms having not more than four hundred (400) machines and 450 employees, producing not more than 750,000 fans per annum.

This final stage of large has been defined as comprising of firms producing not more than 750,000 fans per annum with not more than four hundred (400) machines and four hundred and fifty (450) employees excluding entrepreneur / owner.

These firms engage about hundred (100) employees as permanent which means two hundred and fifty one (251) to three hundred and fifty (350) are seasonal. Firms operating in this class produce high quality and high price fans. They use high-tech machines and therefore employee better skilled and comparatively more technical labourers.

Firms falling in this class operate both in peak and off seasons. However, in off-season production falls by almost 50 percent. These firms operate both in local and export markets. These are all multi-product firms and deal in both plastic and metal fans.

Overall, large is defined as a category with firms producing 200,001-750,000 fans per annum by employing 201-450 people and having not more than 400 machines.

Other Characteristics of Large Size Firms

All these firms are high production, high quality and high price firms. High-tech machines (automatic) and high quality raw material (imported) is used by these firms. These firms operate throughout the country (mostly trough permanent distributors) and target the medium and high income groups of the society. Their product is sold both in rural and urban markets. These firms have great export concerns. Most of the production is done in-house and not more than 20 percent is outsourced. In case of large firms, strong medium-large linkages can be traced in the industry. These firms manufacture both metal and plastic fans (all kinds). These firms have well established brand names and thus are known for their quality in the market. They regularly carry out R&D activities and introduce new designs in the market almost every year and thus become the trend setters / leaders. All the

large firms have arranged advanced testing facilities within the firm. They keep on enhancing the abilities of their employees by arranging in-house training sessions. Owners of large firms also attend training courses (technical and managerial) regularly arranged both at national and international levels. All the large firms do extensive advertisement through wall chalking, brochures, paper and electronic media.

CHAPTER 3

FAN MAKING FIRMS: CHARACTERISTICS AND THEIR PERFORMANCE

This chapter contains information on the industrial profile, entrepreneurial and firms' profile, the characteristics of workers along with the role of government and other related agencies in fan making industry's progress. It gives a detailed account of gathered data both in aggregated and disaggregated forms. Data as collected through detailed questionnaire covers both quantitative and qualitative features of the industry. To know about the characteristics of and performance of various variables with reference to firm size; cross-tabulations are done and to determine the presence or absence of statistical association among firm size and various variables affecting firms' performance, chi-square statistics and likelihood ratios are also measured.

Industrial profile sought information about the concentration of the industry in different areas of Pakistan, the past and potential growth pattern of fan making firms. This is followed by the inquiry about the main problems of the industry such as issues related with the availability and access to various inputs e.g. raw material, labour, machinery etc.

Industrial profile is followed by the **entrepreneurial profile** which focused at assessing the educational level of the entrepreneurs, their background (what individual entrepreneur was doing before starting the fan manufacturing business), nature and level of entrepreneur's technical and managerial skills before and after starting the business, sources of skills acquisition before and after starting the firm, and the reasons for choosing the fan making business.

The third section probes issues regarding the **firms' profile.** Investigations were undertaken regarding the ***general characteristics*** of the firm like the age of the firm, type and nature of business, initial and current activities of the firm, production level, and the initial sources of finance. Then the queries addressed were related with the planning and designing of the firm, current and potential markets, market share of the firm, key success factors for the firm, quality of the products produced,

certification for standardization and the internal and external challenges faced by the firm. The study also focuses on *the technological capabilities* of each firm. Issues addressed were the initial and current number of machines, procurement of tools, machinery and equipment, nature of the business activity (manual or machine based), sources of technological upgradation, firm's research and development activities, product designing practices, quality checking systems, and the expected technological upgradation plans of the firm. Issues regarding the employees i.e. their sources of skills acquisition and development, availability and access to labuor and the wage practices were also explored.

The last section deals with such issues as the role of government in the development of the industry and available and required official support for its promotion. This section also takes into account the role of other supporting / related agencies like Small and Medium Enterprise Development Authority (SMEDA), UNIDO, Ministry of Science and Technology (MoST), and Trade Development Authority (TDA) of Pakistan in the development of the industry.

3.1 Industrial Profile

3.1.1 City-wise Concentration of Fan Making Firms

Fan making firms are concentrated in the province of Punjab. The cities of Gujrat and Gujranwala -the hubs of metalworking- are the main clusters of the industry. Some units are operating in Lahore also, while some are established in Karachi (Sindh Province) as well. It has also been identified that few firms are operating in the NWFP province.

Table 3.1
City-wise Concentration of Fan Making Firms

Firm Size	Gujrat	Gujranwala	Karachi	Lahore	Total
Small	16 (40%)	2 (5%)	1 (2.5%)	0 (0%)	19 (47.5%)
Medium	10 (25%)	8 (20%)	0 (0%)	1 (2.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	28 (70%)	10 (25%)	1 (2.5%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

The data show that out of the total sample, seventy percent were from Gujrat (largest cluster of fan manufacturing firms) with a break up of 40 percent small, 25 percent medium and 5 percent large in size. Twenty five percent firms of the total sample were from Gujranwala, of which 5 percent were small and 20 percent medium. Only 2.5 percent firms were from Lahore and were of medium size. Another 2.5 percent firms were from Karachi and were of small size [Table 3.1].

Significantly, a large number of small size firms are operating in Gujrat; medium size firms are present both in Gujrat and Gujranwala and only a few were in Lahore and Karachi. Presently, almost all the large size firms are established in Gujrat.

3.1.2 Prospects of the Fan Industry

Fan is a product which is used by all income groups of Pakistan. This product is not sold in domestic economy only, fan exports are gradually increasing. A sustained rising demand shows ample growth potential for the manufacturing firms.

When asked to assess the growth potential of the industry, the entrepreneurs predicted the following (see Table 3.2).

Table 3.2
Prospects of the Fan Industry

Firm Size	Will Grow Fast	Growth will Decline	Total
Small	8 (20%)	11 (27.5%)	19 (47.5%)
Medium	14 (35%)	5 (12.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	24 (60%)	16 (40%)	40 (100%)

Source: Authors' Calculations

Sixty percent of the entrepreneurs said that the industry would grow and grow fast. Of these, 20 percent were running small size firms, 35 percent had medium size firms and remaining 5 percent were running large size firms. Forty percent of the entrepreneurs asserted that the industry would have slow growth in the future. Almost 27.5 percent of these were owners of small size firms and 12.5 percent were running medium size firms.

A disaggregated view of the industry highlights that most of the entrepreneurs running the small size firms were not found to be very optimistic about the future growth of industry. Contrary to that significant number of entrepreneurs running the medium size firms were found to be very optimistic that the industry would grow while some of them were concerned that the industry shall face a declining trend in its growth. However, all the large size firms had an optimistic view about its future. This shows that the entrepreneurs running the small size firms are not that much confident regarding the growth of the industry as compared to the entrepreneurs managing the medium and large size firms.

Those who hold the view that the industry shall face a declining trend in its growth were facing diverse internal (entrepreneurs' and workers' educational background, work experience, formal & informal on job training, etc.) and external barriers (institutional support, infrastructural development, etc.) which do not allow them to pace up with the emerging challenges of the industry and join the firms who are optimistic about the future of the industry.

3.1.3 Access to Raw Materials

Availability of and access to raw materials and its prices are always of great concern to firms operating in a manufacturing industry. When inquired about the availability of and access to raw material, sixty five percent of the total sample said that raw material is easily available. Of these 30 percent were small size firms, another 30 percent were medium size firms and remaining 5 percent were large size firms. A few (2.5 percent) expressed the view that there was shortage of raw materials and this concern was shared by medium size firms. The remaining 32.5 percent of the total sample revealed that at times (i.e. during peak season) shortage of raw materials emerges [Table 3.3]. Of these, 17.5 percent were small size firms and other 15 percent were medium size firms.

Table 3.3
Access to Raw Materials

Firm Size	Easily Available	Shortage	Shortage in Peak Season	Total
Small	12 (30%)	0 (0%)	7 (17.5%)	19 (47.5%)
Medium	12 (30%)	1 (2.5%)	5 (15%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	2 (5%)
Total	26 (65%)	1 (2.5%)	13 (32.5%)	40 (100%)

Source: Authors' Calculations

A disaggregated view of the data reveals that hardly any firm claimed that raw material is not available. Few small and medium size firms affirmed to have experienced issues with timely availability of raw material and that too only in the peak season. As far as the large size firms are concerned they had not experienced any kind of issues regarding the availability of and access to raw material.

However, a major concern to all the firms (small, medium and large) was of the frequent and unpredictable fluctuations in the prices of raw materials. Then the industry practices show that raw materials are generally sold on advance payment basis, especially in peak season. The practice of advance payments limits the ability of the small and medium size firms' access to raw materials on credit basis and thus refraining them from undertaking their production activities. This is embedded in the constraints emerging from their size as their financial health is not that much stable. However, the large size firms and some medium size firms being cash enriched do not face any kind of serious problems regarding their access to raw material even on advance payment basis. Sudden changes in the prices of raw materials by the stockers also curtail the production capacity of the firms but mostly of small and medium size firms. They are affected more on account of lack of resources, and weak financial positions. Firms that are unable to pay in advance for raw materials have faced unsatisfactory cash

cycles i.e. firms selling on credit basis and facing problems regarding recovery and thus facing inability to pay in advance for the raw materials. The large size firms even have the capacity to store raw materials.

3.1.4 Industry Specific Training Institute

Establishment of training institutes for industry specific skill development plays a very important role in the growth of industries by introducing timely interventions focused on the entrepreneurs as well as labour. There exists a training institute, namely, Fan Development Institute (FDI) which was established in the city of Gujrat, Punjab in mid 1990s. Having its infrastructure completed in 1998 the institute became operational with the seed funding from the Ministry of Science and Technology, Govt. of Pakistan in 2001.What is however surprising to note is that about 15 percent of the firms showed ignorance about this institute. These include small and medium size firms.

Table 3.4
Awareness about Industry Specific Training Institute

Firm Size	Yes	No	Total
Small	16 (40%)	3 (7.5%)	19 (47.5%)
Medium	16 (40%)	3 (7.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	34 (85%)	6 (15%)	40 (100%)

Source: Authors' Calculations

Further, most of those who knew about the training institute had not approached the institute for technical support. Lack of education, absence of clear vision and operations without growth strategy are identified to be the main reasons of the weak linkage between firms, entrepreneurs and the institute.

3.1.4.1 Role of Training Institute in Skills Development

Data shown in Table 3.5 describes that 15 percent entrepreneurs of the total sample had received training from the institute personally for skill refinement. Of these entrepreneurs, 10 percent were looking after the small size firms and 5 percent were managing the medium size firms. Five percent had sent their labourers to attend the institute for training. Of these, 2.5 percent were running small and another 2.5 percent were running medium size firms. Twenty percent reported that they personally as well as their labourers attended the institute to refine their skills. Of these, 2.5 percent were running small size firms, 12.5 percent were managing medium size firms, while remaining 5 percent were looking after large size firms. Remaining 60 percent of the entrepreneurs had had neither personally attended the training institute nor they had sent their labour for training in the institute. They were of the view that the training institute was not playing any significant role in the skills development of the entrepreneurs and the labourers.

Table 3.5
Beneficiaries of the Training Institute

Firm Size	Personally Got Training	Only Labour Got Training	Personally & Labour Training	No Role	Total
Small	4 (10%)	1 (2.5%)	1 (2.5%)	13 (32.5%)	19 (47.5%)
Medium	2 (5%)	1 (2.5%)	5 (12.5%)	11 (27.5%)	19 (47.5%)
Large	0 (0%)	0 (0%)	2 (5%)	0 (0%)	2 (5%)
Total	6 (15%)	2 (5%)	8 (20%)	24 (60%)	40 (100%)

Source: Authors' Calculations

A disaggregated picture of the industry reveals that most of entrepreneurs running the small and medium size firms asserted that the training institute was not playing any role in skills acquisition and development of the industry.

Overall it is the medium (comparatively at mature stage of operations) and large size category of firms which have benefited most from the fan development institute. The institute has the advance / high-tech machines which are also owned by all the large firms and by some of the medium size firms. Thus the skills imparted in the institute seem to match the financial resources and technological requirements of the production in the large firms and some of the medium size firms, but not the small size firms.

3.2 Entrepreneurs' Profile

3.2.1 Level of Education

Education is one of the very important factors affecting the entrepreneurial ability of individuals. The information shown in Table 3.6 confirm that a significant number of entrepreneurs (90 percent) were educated, though the level of educational attainment varies. Of those who are educated, 45 percent were running small size firms, 42.5 percent were running medium size firms and remaining 2.5 percent were identified to be managing large size firms. The remaining 10 percent of the entrepreneurs were illiterate, of which 2.5 percent were running small size firms, 5 percent were running medium size firms and remaining 2.5 percent were running large size firms.

Table 3.6
Are Entrepreneurs Educated?

Firm Size	Yes	No	Total
Small	18 (45%)	1 (2.5%)	19 (47.5%)
Medium	17 (42.5%)	2 (5%)	19 (47.5%)
Large	1 (2.5%)	1 (2.5%)	2 (5%)
Total	36 (90%)	4 (10%)	40 (100%)

Source: Authors' Calculations

Data shown in Table 3.7 do not establish any significant relation between academic attainment of entrepreneurs and the firm sizes.

Table 3.7
Education Level of Entrepreneurs

Firm Size	Illiterate	Primary	Secondary	Intermediate	Graduate	Post-Graduate	Total
Small	1 (2.5%)	3 (7.5%)	5 (12.5%)	4 (10%)	3 (7.5%)	3 (7.5%)	19 (47.5%)
Medium	2 (5%)	2 (5%)	3 (7.5%)	3 (7.5%)	7 (17.5%)	2 (5%)	19 (47.5%)
Large	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	1 (2.5%)	0 (0%)	2 (5%)
Total	4 (10%)	5 (12.5%)	8 (20%)	7 (17.5%)	11 (27.5%)	5 (12.5%)	40 (100%)

Source: Authors' Calculations

However, disaggregated information highlights that entrepreneurs having graduate level of education are the dominant group managing the small and medium size firms. Direct interaction with entrepreneurs and gathered information about their personal profile also reveals that some small size firms which have now graduated as medium size firms were initially run by illiterate entrepreneurs. Similarly some large size firms (run by illiterate entrepreneurs) have also been able to cross the barriers to growth and have successfully completed their transition from small to medium and from medium to large size category. The industry analysis shows that it is not only the level of education of an entrepreneur but some other factors are also important as even illiterate entrepreneurs have been able to mark appreciable growth and made a leap from small size category to the medium size category and then to large size category.

3.2.2 Initial Knowledge of Technical Skills

Generally it has been observed that when people go for establishing new ventures related to metal working, they do have some skills either directly or indirectly required for the new businesses.

Sample information shows that 70 percent of the entrepreneurs had technical skills before starting the fan making business while remaining 30 percent did not have any kind of technical skills before they started the fan manufacturing business [Table 3.8]. This indicates that majority of the entrepreneurs who entered into fan making business had some technical skills before entering into the fan industry. Those who had the skills before starting the business, presently, 32.5 percent of them were found to be operating the small size firms, 32.5 percent were running medium size firms and remaining 5 percent were managing large size firms. Those who entered into this business without any prior skills of them, presently, 15 percent were found to be managing small size firms and reaming 6 percent were looking after the medium size firms.

Table 3.8
Initial Knowledge of Tehncial Skills

Firm Size	Yes	No	Total
Small	13 (32.5%)	6 (15%)	19 (47.5%)
Medium	13 (32.5%)	6 (15%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	28 (70%)	12 (30%)	40 (100%)

Source: Authors' Calculations

Table 3.9
Sources of Initial Technical Skills Learning

Firm Size	Informal	Formal	None	Total
Small	11 (27.5%)	2 (5%)	6 (15%)	19 (47.5%)
Medium	12 (30%)	1 (2.5%)	6 (15%)	19 (47.5%)
Large	1 (2.5%)	1 (2.5%)	0 (0%)	2 (5%)
Total	24 (60%)	4 (10%)	12 (30%)	40 (100%)

Source: Authors' Calculations

Out of the total sample, 60 percent of the entrepreneurs reported to have learned the skills in the conventional informal (*Ustad-Shagird* / mentor) system or through family experiences and 10 percent had learned the technical skills through formal (vocational or technical education) sources [Table 3.9]. The rest, as already mentioned, did not have any technical skills by the time they started the business.

Of those who learned skills through informal sources, presently, 27.5 percent were managing small size firms, 30 percent medium size firms and remaining 2.5 percent were operating large size firms. Of those who learned skills through formal sources of them 5 percent were presently running small size firms, 2.5 percent were looking after medium size firms and another 2.5 percent were looking after the large size firms.

Overall, the analysis shows that most of the entrepreneurs had learned some technical skill before starting the fan making business and the main source of skills acquisition has been the informal system.

3.2.3 Technical Problems Faced in the Initial Years of Business

Almost every new venture established in the metal working industries faces some problems in the initial years of its establishment; some more than others.

Responding to the inquiry about the technical problems faced by the firms in the initial years of establishment, 57.5 percent of the total sample responded to have faced technical problems when they started the business while remaining 42.5 percent said that they did not face any serious technical problems [Table 3.10].

Table 3.10

Technical Problems Faced in the Initial Years of Business

Firm Size	Yes	No	Total
Small	8 (20%)	11 (27.5%)	19 (47.5%)
Medium	13 (32.5%)	6 (15%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	23 (57.5%)	17 (42.5%)	40 (100%)

Source: Authors' Calculations

Size wise category based responses show that those who faced some technical problems in the initial years 20 percent of them were small size firms, 32.5 percent medium size and remaining 5 percent were

large size firms. Of those who opined not to have faced any major technical problems 27.5 percent were small size firms and 15 percent were medium size firms.

3.2.4 Technical Skills Acquisition during Business

Entrepreneurs operating in metal working industries keep on improving their skills through formal or informal sources. This need generally emerges to out-compete others and due to personal desires to improve ones capabilities. Entrepreneurs operating in the industry were asked if they had learned any new technical skills after starting the business or improved the already learnt skills and if they did, then what was the source of skill upgradation and learning.

Of the total sample, 95 percent responded that they had learned and improved their skills after starting the business while only 5 percent shared that they were continuing without learning technical skills after starting the business [Table 3.11]. Those entrepreneurs who acquired skills 45 percent of them were managing small size firms, another 45 percent were heading mediums size firms and remaining were large size firms' owners. Those who claimed not to have acquired skills of them 2.5 percent were looking after small size firms and another 2.5 percent were managing medium size firms. None of the entrepreneurs operating the large size firms was found to be operating without acquiring skills after entering the business.

Table 3.11
Technical Skills Acquisition during Business

Firm Size	Yes	No	Total
Small	18 (45%)	1 (2.5%)	19 (47.5%)
Medium	18 (45%)	1 (2.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	38 (95%)	2 (5%)	40 (100%)

Source: Authors' Calculations

Talking about the sources of skills acquisition, of the total sample 72.5 percent of the entrepreneurs acquired technical skills through informal system of training (*Ustad-Shagird* system or from family experiences), 7.5 percent learned these skills from formal sources (technical and vocational education), 12.5 percent responded to have learned technical skills through learning by doing and 2.5 percent acquired skills through both formal and informal systems while rest 5 percent did not learn any technical skills [Table 3.12]. Those who did not learn any technical skills were of the view that they were already well equipped with skills needed for the business.

Table 3.12
Sources of Technical Skills Acquisition during Business

Firm Size	Informal	Formal	Both	None	Learning by Doing	Total
Small	15 (37.5%)	0 (0%)	1 (2.5%)	1 (2.5%)	2 (5%)	19 (47.5%)
Medium	14 (35%)	2 (5%)	0 (0%)	1 (2.5%)	2 (5%)	19 (47.5%)
Large	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	1 (2.5%)	2 (5%)
Total	29 (72.5%)	3 (7.5%)	1 (2.5%)	2 (5%)	5 (12.5%)	40 (100%)

Source: Authors' Calculations

Disaggregated information shows that a significantly large number of entrepreneurs running the small size firms acquired skills through informal channel, after starting the business. Similarly, large number of entrepreneurs running the medium size firms also acquired skills after entering into the business and the main source of learning was informal. Some of the entrepreneurs owing medium size firms also improved their skills through formal source of training. At the same time, learning by doing has also been identified to be a main source of skills improvement. As far as the large size firms are concerned, entrepreneurs owing these firms were identified to be acquiring skills through formal sources of training and learning by doing.

Overall the skills acquisition practices in the industry belongs to informal pattern of training. However, the trend is changing as more and more educated entrepreneurs are entering into the business. These better educated entrepreneurs are much inclined towards attending management and technical training courses for making their firms competitive both at domestic and international levels.

3.2.5 Reasons for Choosing the Fan Making Business

People choose various kinds of businesses due to varying reasons. When asked what made the entrepreneurs to choose the fan manufacturing business, diversified responses surfaced. Of the total sample, 52.5 percent responded to have adopted it as a family business, 20 percent started the fan manufacturing business as attracted by the market profits, 10 percent responded that they chose this business as it was their family business and along with that market profits also attracted them, 2.5 percent responded to have started this business just by chance another 2.5 percent started fan manufacturing business as they had special liking for the business and 12.5 percent of the entrepreneurs opted for fan manufacturing business due to some other reasons [Table 3.13].

Those who have been categorized to represent a group as "others" shared that they were labourers and the indecent behaviour of their bosses made them to start their own business. They had the skills and did not want to be humiliated for nothing. Some of these responded that they found it an easy business to start while others who migrated to Gujrat cluster from Karachi having technical skills and the availability and easy access to raw material and skilled labour attracted them to start fan making business.

Predominantly family based business has been identified as main reason for entering into the industry. Disaggregated picture of the industry represents that most of the small size firms were owned by those entrepreneurs who had fan making as a family business. Some were attracted by market profits and some others entered into the industry as affected by other factors. Family based business has been identified as a major reason for entering into the industry for medium size firms as well. Fairly a good number of entrepreneurs stepped into the industry as attracted by market profits. Some medium size firms were also owned by those who

Table 3.13
Reasons for Choosing Fan Making Business

Firm Size	Family Business	Market Profits	Family Business & Market Profits	By Chance	Special Liking for Fan Business	Other Factors	Total
Small	12 (30%)	2 (5%)	2 (5%)	0 (0%)	0 (0%)	3 (7.5%)	19 (47.5%)
Medium	8 (20%)	5 (12.5%)	2 (5%)	1 (2.5%)	1 (2.5%)	2 (5%)	19 (47.5%)
Large	1 (2.5%)	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	21 (52.5%)	8 (20%)	4 (10%)	1 (2.5%)	1 (2.5%)	5 (12.5%)	40 (100%)

Source: Authors' Calculations

started this business by chance, having special liking for the business and due to some other factors as well. As far as the large size firms are concerned they are owned by those entrepreneurs who started the fan making business because it was their family business and some were attracted by market profits.

3.3 Firms' Profile

3.3.1 Ownership Structure of Firms: Initial and Present

Firms operate as sole proprietorships, partnerships, in the form of Private Limited and Public Limited Companies. Initial organizational setup of 47.5 percent of the firms surveyed was sole proprietorship, 50 percent were partnerships and remaining 2.5 percent were identified to be private limited companies [Table 3.14]. However, this organizational setup has gone through transition over the years. Currently, 52.5 percent of the firms are sole proprietorships, 40 percent are partnerships, 5 percent are private limited and remaining 2.5 percent are public limited companies [Table 3.15]. This shows that overall the sole proprietorship pattern of organizational set up has increased, whereas the trend of partnership is slightly on decline in the industry. The emergence of public limited companies is a significant change in the industry in recent time.

Table 3.14
Initial Ownership Structure of Firms

Firm Size	Sole-Proprietorship	Partnership	Private Limited Company	Total
Small	7 (17.5%)	11 (27.5%)	1 (2.5%)	19 (47.5%)
Medium	10 (25%)	9 (22.5%)	0 (0%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	2 (5%)
Total	19 (47.5%)	20 (50%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

Disaggregated snapshot of initial ownership setup of the small size firms shows that most of them were partnerships and a good number of them were also in the form of sole proprietorships. However, presently most of them are sole proprietorships and remaining are partnerships. This depicts that the pattern of sole proprietorship style of organizational ownership is sprouting in the case of small size firms in the industry.

Table 3.15
Current Ownership Structure of Firms

Firm Size	Sole-proprietor	Partnership	Pvt Ltd. Company	Public Ltd. Company	Total
Small	11 (27.5%)	8 (20%)	0 (0%)	0 (0%)	19 (47.5%)
Medium	8 (20%)	8 (20%)	2 (5%)	1 (2.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	21 (52.5%)	16 (40%)	2 (5%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

Of the medium size firms surveyed, the data shows that at the start up stage almost half of them were sole proprietorships and remaining half were partnerships. Presently, the medium size category contains firms of which a fairly large number of firms are partnerships followed by the ownership structure of sole proprietorships while few are private and public limited companies. The emergence of private and public limited companies in the medium size category of firms is a significant transition. As compared to small size firms, in case of medium size firms the percentage of sole proprietorship has declined more than that of partnership.

As far as the large size firms are concerned no change in the ownership setup of the firms has been observed. They were sole proprietorships in the initial stages and still continue to be the sole

proprietorships. It has been observed that most of the transition regarding the organizational setup of firms in the industry is being experienced by the medium sized firms.

3.3.2 Planning and Designing of the Firm

Future is unpredictable but effective planning can help to identify and exploit the market opportunities and thus allow the firms to grow. When questioned about the planning and designing of the firm, 72.5 percent of the entrepreneurs responded that they had done the planning and designing of the firm on their own, 20 percent responded that it was done with the help of friends, 2.5 percent of the total sample shared that it was technical labour / foreman who helped in planning and design of the firm another 2.5 percent shared to have been facilitated by both friends and technical labour / foreman and remaining 2.5 percent revealed that their efforts for the planning and designing of the firm were complemented by engineers [Table 3.16].

A disaggregated picture of the industry reveals that most (35 percent) of the small size firms were planned and designed by the entrepreneurs on their own while some of the entrepreneurs did it with the help of friends and engineers as well. Same holds true for the medium size firms as most of them (32.5 percent) were planned and designed by the entrepreneurs themselves. However, some of them were also planned and designed with the help of expert friends and technical labourers. None of the medium size firms surveyed were planned and designed with the help of the engineers. Entrepreneurs running large size firms shared that the planning and designing activity was initially undertaken by them at personal level. However, the later expansion plans were a collective effort facilitated by others as well i.e. friends, labourers / foreman and engineers.

3.3.3 Financial Resources for the Start-up of Business

Financial resources are one of the most important variables affecting the emergence, survival and growth of the firms of any size. When asked about the details of the sources of finance for starting the business, entrepreneurs came up with multiple responses. Of the total sample, 52.5 percent responded to have started their business using their personal financial resources that were presently available with them, 5 percent responded to have used their past savings only, 2.5 percent responded

Table 3.16
Planning and Designing of Firms

Firm Size	Personally	Personally & Friends	Personally &Technical Labour	Personally, Friends & Technical Labour	Personally & Engineers	Total
Small	14 (35%)	4 (10%)	0 (0%)	0 (0%)	1 (2.5%)	19 (47.5%)
Medium	13 (32.5%)	4 (10%)	1 (2.5%)	1 (2.5%)	0 (0%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	29 (72.5%)	8 (20%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

to be supported by their family and friends another 2.5 percent revealed to have accessed the financial institutions for starting the business, 20 percent of the entrepreneurs shared to have used personal, family and friends resources to start their businesses and 17.5 percent responded to have used both their personal resources (present) as well as their past savings to start the business [Table 3.17].

A disaggregated picture of the data shows that most of the small size firms (27.5 percent) were started with the personal resources of entrepreneurs and few were started with the financial support of friends and family as well. None of the small size was started with the support from financial institutions. Of the medium size firms most of the firms (22.5 percent) were started with entrepreneurs' personal resources. Some were established with the financial support of friends and entrepreneurs past saving. It has also been identified that few medium size firms were established with the help of financial institutions as well. Interaction with entrepreneurs running large size firms revealed that half of them started their business using personal resources while rest of them established their firms using both friends and family resource along with personal financial resources.

The industry analysis shows that financial institutions are not a major actors being approached by the fan manufacturing firms. Most of the time entrepreneurs have been relying on their personal resources along with support from family and friends.

3.3.4 Main Activity of Firms in the Initial Years of Establishment

To trace the core capability of firms in their initial years of establishment it was inquired if the firm was a part manufacturer, assembler or was undertaking both the activities. Of the total sample, 10 percent firms used to be part manufacturers in the initial years of their life, 37.5 percent used to be fan manufacturers i.e. assemblers only while rest 52.5 percent were engaged both in part and fan manufacturing [Table 3.18].

Table 3.17
Sources of Finance for Business Start-up

Firm Size	Personal	Friends or Family	Past Saving	Banks or Other Financial Institution	Personal & Family & Friends	Personal & Past Savings	Total
Small	11 (27.5%)	1 (2.5%)	2 (5%)	0 (0%)	2 (5%)	3 (7.5%)	19 (47.5%)
Medium	9 (22.5%)	0 (0%)	0 (0%)	1 (2.5%)	5 (12.5%)	4 (10%)	19 (47.5%)
Large	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	1 (2.5%)	0 (0%)	2 (5%)
Total	21 (52.5%)	1 (2.5%)	2 (5%)	1 (2.5%)	8 (20%)	7 (17.5%)	40 (100%)

Source: Authors' Calculations

Table 3.18
Initial Core Activity of Firms

Firm Size	Fan Parts Manufacturing	Fan Manufacturing	Fan Parts & Fan Manufacturing	Total
Small	3 (7.5%)	9 (22.5%)	7 (17.5%)	19 (47.5%)
Medium	1 (2.5%)	6 (15%)	12 (30%)	19 (47.5%)
Large	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	4 (10%)	15 (37.5%)	21 (52.5%)	40 (100%)

Source: Authors' Calculations

Within the small size category of firms, most of the firms (22.5 percent) were involved in fan manufacturing i.e. assembly of fan. Fairly a good number of firms were engaged in manufacturing of both fan parts and fan assembly. Some were dealing in fan parts only. Among medium size category of firms a significant number of firms (30 percent) were involved in manufacturing both fan parts and fans. Some (15 percent) were dealing with fan manufacturing only and a few were engaged in fan part manufacturing only. As far as large size firms are concerned, sample information shows that these firms were engaged in part manufacturing as well as fan manufacturing in the initial years of their establishment.

3.3.5 Current Main Activity of Firms

To observe what kind of shifts have taken place in the operations of the firms as compared to their activities in the initial years of their life, queries were raised in order to trace the current main activities of the firms. 42.5 percent of the firms surveyed responded that presently main activity of the firm was fan manufacturing only i.e. assembling while remaining 57.5 percent reported to deal with both part and fan manufacturing [Table 3.19]. Industrial observations reveal that firms dealing with fan part manufacturing only have graduated as fan manufacturers. It means that the activity of part manufacturing as an outsourcing practice has been transferred to others (existing and new entrants) in the market.

Table 3.19
Current Core Activity of Firms

Firm Size	Fan Manufacturing	Fan Parts & Fan Manufacturing	Total
Small	12 (30%)	7 (17.5%)	19 (47.5%)
Medium	5 (12.5%)	14 (35%)	19 (47.5%)
Large	0 (0%)	2 (5%)	2 (5%)
Total	17 (42.5%)	23 (57.5%)	40 (100%)

Source: Authors' Calculations

Most of the small size firms were found to be engaged in fan manufacturing only while others were dealing in both fans and fan parts. Talking about medium size firms significantly large number of firms were undertaking both the activities i.e. fan part and fan manufacturing. However, some medium size firms were engaged in fan manufacturing only. As far as the large size firms are concerned they were dealing with parts and fan manufacturing both in the initial years of their life and continued with the same till today.

3.3.6 Output Range of Firms (per annum)

When asked about per annum production, 17.5 percent of the total sample firms reported producing 800-5000 fans per annum, 10 percent were producing fans ranging 5001-10,000, 17.5 percent were found to be producing 10,001-20,000 fans, another 17.5 percent were producing 20,001-50,000 fans, 17.5 percent were operating with a range of 50,001-90,000 fans per annum, 10 percent were producing 90,001-150,000 fans, 5 percent were producing 150,001-200,000 fans while remaining 5 percent were identified to be producing 200,001-750,000 fans per annum [Table 3.20].

A significant share of the sample was operating within a production range of 800-200,000 (small and medium size firms) but their market

Table 3.20
Output Range of Firms (per annum)

Firm Size	800-5000	5001-10000	10001-20000	20001-50000	50001-90000	90001-150000	150001-200000	500001-750000	Total
Small	7 (17.5%)	4 (10%)	7 (17.5%)	0 (0%)	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	19 (47.5%)
Medium	0 (0%)	0 (0%)	0 (0%)	7 (17.5%)	7 (17.5%)	3 (7.5%)	2 (5%)	0 (0%)	19 (47.5%)
Large	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	7 (17.5%)	4 (10%)	7 (17.5%)	7 (17.5%)	7 (17.5%)	4 (10%)	2 (5%)	2 (5%)	40 (100%)

Source: Authors' Calculations

share was not significant. Rather the market was dominated by the large size firms operating with an annual production range of 200,001 – 750,000 fans per annum.

3.3.7 Product Range of Firms

Generally as the firms grow, they tend to diversify in products. To know the product range of the firms they were asked about their main product and inter-related products they were manufacturing. 60 percent of the total firms surveyed were manufacturing only fans, 7.5 percent were found to be manufacturing fans and washing machines, 15 percent were identified to be manufacturing fans, washing and skimming machines, 5 percent were identified to be dealing with fans, washing and skimming machines and motorbikes, 5 percent were found to indulge in part manufacturing not only for the firm itself but for others as well along with fan manufacturing, 2.5 percent were identified to manufacture small and industrial motors and transformers along with fans another 2.5 percent were manufacturing fans and water pumps, and remaining 2.5 percent were observed to be producing fans, washing machines, air coolers and gas appliances like heaters and geezers [Table 3.21].

Size based observations of the firm highlights that most of the small size firms were manufacturing fans only, some of them were found to be manufacturing fans and washing machines while remaining were manufacturing fans, washing and skimming machines. Of the medium size category, half of the sample firms were identified to be manufacturing fans only, few were producing fans and washing machines, some were identified to be producing fans, washing and skimming machines and motorbikes, and some more were dealing with fans along with fan parts for the firm itself as well as for others. A number of medium size firms were also producing domestic and industrial motors and transformers, some more were dealing with fans and water pumps and remaining sample firms were manufacturing fans along with washing machines, room air coolers and gas appliances. Large size sample firms were found to be manufacturing fans, washing and skimming machines and fan parts.

The industrial analysis reveals that it is the medium size category of firms which have diversified most. This category of firms have been able to do so as compare to small and medium size firms more easily. As far

Table 3.21
Product Range of Firms

Firm Size	Fans	Fans & Washing Machines	Fans, Washing & Skimming Machines	Fans, Washing & Skimming Machines & Motor Bikes etc.	Fans, Fan Parts for Itself and Others	Fans, Small & Industrial Motors & Transformers	Fans & Water Pumps	Fans, Washing Machines, Air Coolers & Gas Appliances	Total
Small	14 (35%)	2 (5%)	3 (7.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	19 (47.5%)
Medium	10 (25%)	1 (2.5%)	1 (2.5%)	2 (5%)	2 (5%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	19 (47.5%)
Large	0 (0%)	0 (0%)	2 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	24 (60%)	3 (7.5%)	6 (15%)	2 (5%)	2 (5%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

as the small size firms are concerned they lack finances as well as more sophisticated methods of production and skills. Talking about large size firms they prefer to focus more on improving their skills and build their capacity in fan making to gain competitive advantage in international markets. They are the leaders in the domestic market but the challenges emerging in the international markets calls for much better quality product. So instead of diversifying a lot they prefer to focus on the core product though with diversification.

3.3.8 Market Share of Firms

Higher the market share, the more productive and efficient the firms tend to be. When asked about the market share, 12.5 percent of the firms claimed to have significant share in the market. None of these was a small size firm, few were medium and all were the large size firms. 27.5 claimed to have nominal share in the market. Few of these were small size firms while a significant number of firms were medium size firms. Remaining 60 percent reported that they had insignificant share in the market. Most of them were small size firms and some were medium size firms [Table 3.22].

Table 3.22
Market Share of Firms

Firm Size	Significant Share	Nominal Share	Insignificant Share	Total
Small	0 (0%)	2 (5%)	17 (42.5%)	19 (47.5%)
Medium	3 (7.5%)	9 (22.5%)	7 (17.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	2 (5%)
Total	5 (12.5%)	11 (27.5%)	24 (60%)	40 (100%)

Source: Authors' Calculations

Table 3.23
Trends of Market Share of Firms

Firm Size	Increasing	Decreasing	Constant	Increasing Slowly	Total
Small	8 (20%)	4 (10%)	2 (5%)	5 (12.5%)	19 (47.5%)
Medium	13 (32.5%)	2 (5%)	2 (5%)	2 (5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	23 (57.5%)	6 (15%)	4 (10%)	7 (17.5%)	40 (100%)

Source: Authors' Calculations

Regarding the trend of market share, 57.5 percent of the firms were of the view that their market share was increasing, 17.5 percent responded to have an increasing trend in the market share but at a lower growth rate, 15 percent were facing a decreasing trend while reaming 10 percent said that their market share is stagnant [Table 3.23].

A disaggregated description of the data highlights that most of the small and medium size firms and all the large size firms were facing an increasing trend in their market share. Few small and medium size firms were facing an increase trend in their market share but at a lower growth rate. Some of the small and medium size firms explained that their market share was stagnant while some more were of the view that they were facing a decreasing trend in their market share.

3.3.9 Future Demand Forecast

Different entrepreneurs see growth prospects from their own perspective. Eighty percent of them said that they were hopeful to experience an increase in the demand of their products, 12.5 percent expected to face a declining trend while reaming 7.5 percent responded that their firm's product demand would remain the same in future also [Table 3.24].

Data in disaggregated form shows that most of the small size firms expected to experience to increased demand for their products, some expected to face a decline, while the rest expected no change in the demand for their products. Of the medium size category of firms, most of the firms expected to have an increased demand for their products, few expected to face a decline, while remaining expected to face no change in the demand for their products. All the large size firms expected an increasing demand for their products. This shows that most of the firms are hopeful that in the future the demand of their products shall increase.

Table 3.24
Future Demand Forecast

Firm Size	Increasing	Decreasing	Constant	Total
Small	14 (35%)	4 (10%)	1 (2.5%)	19 (47.5%)
Medium	16 (40%)	1 (2.5%)	2 (5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	2 (5%)
Total	32 (80%)	5 (12.5%)	3 (7.5%)	40 (100%)

Source: Authors' Calculations

3.3.10 Markets for Final Products

Firms target different markets keeping in view the market dynamics which support their selling strategy and are further complemented by their production capacity along their technological capabilities. Some sell in the local markets while others sell in international markets. Fifty five percent of the total firms operated in domestic market only, and the remaining 45 percent were operating both in domestic and international (export) markets [Table 3.25].

The survey showed that the firms' market outreach is essentially determined by their resources. In the case of export market, major concern is meeting the standards of the target country, thus a match of

technological capabilities of the firms and the quality requirements of the target markets becomes essential. Visionary entrepreneurs can do this effectively. Still there are some who target export market but indirectly i.e. due to lack of education they are unable to understand the procedural requirements for exports, thus are dependent upon others (as sub-contractors or suppliers).

Table 3.25
Markets for Final Products

Firm Size	Domestic Markets	Domestic & International Markets	Total
Small	14 (35%)	5 (12.5%)	19 (47.5%)
Medium	8 (20%)	11 (27.5%)	19 (47.5%)
Large	0 (0%)	2 (5%)	2 (5%)
Total	22 (55%)	18 (45%)	40 (100%)

Source: Authors' Calculations

When viewed in disaggregated form the data showed that most of the small size firms were operating in the domestic market while some of them were operating both in domestic and export markets. Of the medium size firms, fairly large number of firms was operating in domestic markets and a significant number of firms were operating in both the markets. All the large size firms were operating both in the domestic and export markets. Though firms of all categories (small, medium and large) are exporting but their markets are quite different on the basis of their product quality which is also linked with their technological capabilities and skills of workers and entrepreneurs.

3.3.11 Key Success Factors of Firms

Firms compete on the basis of their strengths which emerge as their competitive advantage with the passage of time. Data revealed that for 12.5

Table 3.26
Key Success Factors of Firms

Firm Size	Quality	Price	Skilled & Trained Labour	Quality & Price	Quality, Price & Advertisement	Quality, Price & Skilled Labour	Quality & Advertisement	All	Total
Small	0 (0%)	0 (0%)	1 (2.5%)	7 (17.5%)	5 (12.5%)	2 (5%)	1 (2.5%)	3 (7.5%)	19 (47.5%)
Medium	4 (10%)	1 (2.5%)	0 (0%)	8 (20%)	2 (5%)	1 (2.5%)	1 (2.5%)	2 (5%)	19 (47.5%)
Large	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2.5%)	2 (5%)
Total	5 (12.5%)	1 (2.5%)	1 (2.5%)	15 (37.5%)	7 (17.5%)	3 (7.5%)	2 (5%)	6 (15%)	40 (100%)

Source: Authors' Calculations

percent of the firms identified, quality was the key success factor, for 2.5 percent it was price, another 2.5 percent mentioned skilled and trained labour, for 37.5 percent of the firms it was both price and quality, 17.5 percent claimed their success factors were quality, price and advertisement, 7.5 percent held that it was quality, price and skilled labour, 5 percent said it was both quality and advertisement while remaining 15 percent responded that they consider all the factors (quality, price, skilled labour and advertisement) as their key to success [Table 3.26].

The disaggregated data show that for most of the small size firms price and quality of their product were the key success factors. Same holds true for medium size firms. However, for some of the medium size firms it was only quality of their product which they consider as the key success factor. Of the sample firms surveyed, half of the large size firms asserted that it was only the quality that ensured the success of the firm, while remaining half of the large size firms held that all the factors (quality, price, skilled labour and advertisement) were the key success factors.

3.3.12 Quality of the Products

Using varied skills and technological capabilities, firms produce and sell products of different qualities in the market. When asked how the firms rank their product on the basis of quality, 22.5 percent of the total sample responded that they were producing a product of excellent quality, 60 percent shared that their product was of good quality while remaining 17.5 percent said that they were producing a fair (normal / comparatively low) quality product [Table 3.27].

Table 3.27
Quality of the Products

Firm Size	Fair	Good	Excellent	Total
Small	6 (15%)	12 (30%)	1 (2.5%)	19 (47.5%)
Medium	1 (2.5%)	12 (30%)	6 (15%)	19 (47.5%)
Large	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	7 (17.5%)	24 (60%)	9 (22.5%)	40 (100%)

Source: Authors' Calculations

Disaggregated information shows that most of the small size firms claimed to be producing a good quality product and some of them said that they were making fair quality fans. As far as the medium size firms are concerned most of them shared that they were making good quality fans, some of them were making fans of excellent quality and remaining few said that they were producing fair (normal / low quality) product. All the large size firms were identified to be producing excellent quality product.

3.3.13 Certification for Standardization

Generally firms go for certifications with an aim to introduce better management practices, to have a better quality product and well organized manufacturing processes. Forty five percent of the firms had certification carried out while the remaining 55 percent were operating without any kind of certifications for standardization [Table 3.28].

Table 3.28
Certification for Standardization

Firm Size	Yes	No	Total
Small	4 (10%)	15 (37.5%)	19 (47.5%)
Medium	12 (30%)	7 (17.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	18 (45%)	22 (55%)	40 (100%)

Source: Authors' Calculations

Disaggregated data showed that a large number of small size firms were operating without any kind of certification. Of the medium size category of firms, fairly significant number of firms had certification while some were found to be running their operations without any certification. All large size firms had retained certification.

3.3.13.1 Purposes of Getting Certified

Thirty five percent firms of the total sample were identified to go for certification with an aim to introduce better management and

documentation practices, 10 percent were interested in targeting international markets with the improvement in management and documentation practices. Remaining 55 percent operated without any kind of certification [Table 3.29].

Table 3.29
Purposes of Getting Certified

Firm Size	Better Management & Documentation	Exports & Better Management	None	Total
Small	4 (10%)	0 (0%)	15 (37.5%)	19 (47.5%)
Medium	9 (22.5%)	3 (7.5%)	7 (17.5%)	19 (47.5%)
Large	1 (2.5%)	1 (2.5%)	0 (0%)	2 (5%)
Total	14 (35%)	4 (10%)	22 (55%)	40 (100%)

Source: Authors' Calculations

Of the small size category of firms, those who had obtained certification responded to have obtained that with a purpose to improve their management and documentation practices. Half of the firms belonging to medium size category responded to have acquired certification for better management and documentation practices and some of them responded to have obtained certification with an aim to go for exports along with the introduction of better management and documentation practices. Of the large size category of firms, half of them responded to have obtained certification for better management and documentation practices while others shared that they obtained certification as they wanted to go for exports along with better documentation and management practices.

3.3.13.2 Types of Certification

Firms obtain three types of quality certificates: ISO, CE Marking and UL Mark. ISO is typically for management and documentation purposes while other two are certificates needed for export to UK and US markets respectively. Of the total sample, 35 percent firms were identified to have ISO certification, 2.5 percent were found to have CE Marking, 5 percent had

both ISO and CE Marking and 2.5 percent were identified to have all the certifications (ISO, CE Marking and UL certificate) while remaining 55 percent were operating without any certifications. [Table 3.30]

Table 3.30
Types of Certification

Firm Size	ISO	CE Mark	ISO & CE Mark	None	ISO, CE & UL	Total
Small	4 (10%)	0 (0%)	0 (0%)	15 (37.5%)	0 (0%)	19 (47.5%)
Medium	9 (22.5%)	1 (2.5%)	2 (5%)	7 (17.5%)	0 (0%)	19 (47.5%)
Large	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	1 (2.5%)	2 (5%)
Total	14 (35%)	1 (2.5%)	2 (5%)	22 (55%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

Few small size firms were operating with ISO certification and none of them was found to hold CE Marking or UL certification. Most of the medium size firms who had certifications were holding ISO certification and few had CE Marking whereas none of the medium size firms had UL certification. As far as the large size firms are concerned, half of them were identified to hold ISO certification and remaining shared to hold ISO certification, CE Marking and UL certification. This implies that as the firms grow, they have a greater tendency to get certifications.

3.3.13.3 Certification Charges

As for the cost of certifications, 35 percent of the sample firms had paid themselves, 7.5 percent partially (complemented by the government support), 2.5 percent supported by other agencies, while remaining 55 percent were operating without any kind of certifications [Table 3.31].

Table 3.31
Certification Charges

Firm Size	Self	Self & Government	None	Self & other Agency	Total
Small	4 (10%)	0 (0%)	15 (37.5%)	0 (0%)	19 (47.5%)
Medium	8 (20%)	3 (7.5%)	7 (17.5%)	1 (2.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	14 (35%)	3 (7.5%)	22 (55%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

Disaggregated information reveals that all the small size firms paid for certification on their own. Most of the medium size firms also paid for certification on their own, some were facilitated by the government and few of them responded that they were supported by some supporting agency for industrial development. All the large firms had paid for certification of their own. So a significant proportion of firms who had certification had paid for it of their own.

3.3.14 Technological Capabilities of Firms

3.3.14.1 Initial Number of Machines

Apart from other factors, number of machines held by a firm also determines the productive capacity and thus the size of the firm. When asked about the number of machines held by the firm in the initial years of establishment, of the total sample 52.5 percent had started business with less than 8 machines, 27.5 percent started business with 8-10 machines, 5 percent had 11-12 machines, 2.5 percent started off with 13-15 machines, 10 percent had 16-30 machines and remaining 2.5 percent responded to have 31-50 machines in the initial years of their activities [Table 3.32].

Table 3.32
Initial Number of Machines

Firm Size	<8	8-10	11-12	13-15	16-30	31-50	Total
Small	13 (32.5%)	5 (12.5%)	0 (0%)	0 (0%)	0 (0%)	1 (2.5%)	19 (47.5%)
Medium	6 (15%)	6 (15%)	2 (5%)	1 (2.5%)	4 (10%)	0 (0%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	21 (52.5%)	11 (27.5%)	2 (5%)	1 (2.5%)	4 (10%)	1 (2.5%)	40 (100%)

Source: Authors' Calculations

Category based information of firms show that of the small size firms surveyed most of them had less than 8 machines in the initial years of their businesses and some had 8-10 machines while few were operating with 31-50 machines [these grew from small to medium and from medium to large but are now operating as small size firms again]. Some of the medium size firms responded to have less than 8 machines in the initial years of their businesses, some more shared to have 8-10 machines, few were operating with 11-12 machines, 13-15 machines and remaining some shared to have 16-30 machines in the initial years of their business. All the large size firms responded to have less than 8 machines when they started the business.

3.3.14.2 Current Number of Machines

Even at present [2008-09] 5 percent of the total firms were operating with less than 8 machines, 10 percent had 8-10 machines, another 10 percent had 11-12 machines, 17.5 percent were operating with 13-15 machines, 22.5 percent had 16-30 machines, 10 percent had 31-50 machines, another 10 percent were operating with 51-90 machines, 7.5 percent had 91-150 machines, 2.5 percent had 201-300 machines while remaining 5 percent were operating with 301-400 machines [Table 3.33]

Firms' size based observation of the data shows that of the small size firms 5 percent were undertaking their manufacturing activities with

Table 3.33
Current Number of Machines

Firm Size	<8	8-10	11-12	13-15	16-30	31-50	51-90	91-150	201-300	301-400	Total
Small	2 (5%)	4 (10%)	4 (10%)	7 (17.5%)	1 (2.5%)	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	19 (47.5%)
Medium	0 (0%)	0 (0%)	0 (0%)	0 (0%)	8 (20%)	4 (10%)	3 (7.5%)	3 (7.5%)	1 (2.5%)	0 (0%)	19 (47.5%)
Large	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	2 (5%)	4 (10%)	4 (10%)	7 (17.5%)	9 (22.5%)	4 (10%)	4 (10%)	3 (7.5%)	1 (2.5%)	2 (5%)	40 (100%)

Sources: Authors' Calculations

less than 8 machines presently, 10 percent had 8-10 machines, another 10 percent had 11-12 machines, and 17.5 percent had 13-15 machines while remaining 2.5 percent were identified to have 16-30 machines. A firm which was identified to have 51-80 machines was not operating as medium size firms as it did not meet other criterions of being medium thus was placed amongst the small size firms. Of the medium size firms, 20 percent were found to have 16-30 machines, 10 percent were identified to have 31-50 machines, 7.5 percent were found to have 51-90 machines, another 7.5 percent were identified to hold 91-150 machines while remaining 2.5 percent of the medium size category were found to have 201-300 machines. Presently all the large size firms of the sample were operating with machines ranging from 301 – 400 currently.

This shows that over the years as the industry has grown new firms having more than 50 machines have emerged. This also implies that as the firm size has been growing the number of machines has also increased.

3.3.14.3 Make of Machines

Overall, 35 percent of the total firms used only locally made machines and these were all small size firms. Remaining 65 percent were using both the local and imported machines. Of these, 12.5 percent were small, 47.5 percent were medium and remaining 5 percent were large size firms. None of the firms relied only on imported machines [Table 3.34].

Table 3.34
Make of Machines

Firm Size	Local	Local & Imported	Total
Small	14 (35%)	5 (12.5%)	19 (47.5%)
Medium	0 (0%)	19 (47.5%)	19 (47.5%)
Large	0 (0%)	2 (5%)	2 (5%)
Total	14 (35%)	26 (65%)	40 (100%)

Source: Authors' Calculations

However the machines owned and used by the small size firms were not very advanced or high-tech machines. The level of technological sophistication of the machines was found to be quite varied among this group of firms i.e. some were using comparatively low tech-machines while others were using high-tech machines. Moreover, the firms using high-tech machines were those who were advancing towards the maturity stage of the medium size category with an exception of one or two firms who were operating in the initial stages of growth of medium size category of firms. Having vision to expand by using new machinery they were able to approach and use high-tech machines in their operations. Similarly, all the large size firms of the sample unfolded to be using both local and imported machines for the production purposes. As far as the level of technological sophistication is concerned, it was found to be much higher in case of large size firms.

3.3.14.4 Purchase of Machinery

When asked if the machinery was purchased by the entrepreneurs personally, 55 percent of the entrepreneurs said that they purchased machinery personally, 7.5 percent shared that their technical labour / foreman helped in purchasing machinery, 32.5 percent were facilitated by technical / skilled friends while remaining 5 percent were facilitated by experts (engineers) [Table 3.35].

Talking about the small size firms, most of the entrepreneurs said that they had purchased machinery personally, few shared to have been supported by technical labour / foreman and remaining said that they were facilitated by technical friends (other entrepreneurs). Of the medium size category, some of the entrepreneurs revealed to have purchased machinery without any assistance, few said that they were facilitated by technical labour, some more shared to have been aided by technical friends (other entrepreneurs) while remaining few said that they asked for help to the experts (engineers). As far as the large size firms are concerned they bought machinery independently as they had the requisite technical knowledge. Technical know-how and then the experience of local and foreign markets added to that also.

3.3.14.5 Nature of Core Business Activity

All the firms in the industry use a combination of manual and machine-based production methods [Table 3.36]. However, machine

Table 3.35
Purchase of Machinery

Firm Size	Personally	Personally & Foreman / Technical Labour	Personally & Technical Friends	Personally & Technical Experts	Total
Small	12 (30%)	1 (2.5%)	6 (15%)	0 (0%)	19 (47.5%)
Medium	8 (20%)	2 (5%)	7 (17.5%)	2 (5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	22 (55%)	3 (7.5%)	13 (32.5%)	2 (5%)	40 (100%)

Source: Authors' Calculations

based activities were traced to be increasing as the size of the firms grow and they tend to increase its production capacity.

Table 3.36
Nature of Core Business Activity

Nature of Core Business Activity	Frequency	Percentage
Manual	0	0
Machine Based	0	0
Both Manual & Machine Based	40	100
Total	40	100

Source: Authors' Calculations

3.3.14.6 Quality Assurance

All the firms (small, medium and large) claimed to have the quality checking system in place and it is both manual and machine based [Table 3.37 & 3.38].

Table 3.37
Quality Checking System

Quality Checking System	Frequency	Percentage
Yes	40	100
No	0	0
Total	40	100

Source: Authors' Calculations

Table 3.38
Nature of Quality Checking System

Nature of Quality Checking System	Frequency	Percentage
Manual	0	0
Machine Based	0	0
Both Manual & Machine Based	40	100
Total	40	100

Source: Authors' Calculations

However, the level of sophistication of tools and equipment being used for quality checking varies from small to medium and from medium to large size firms. The testing equipment used by the small size firms is not technologically very advanced on the other hand some medium size firms and all the large size firms are using technologically better tools, machines and equipment for quality checking of their products.

3.3.14.7 Designing of the Products

Twenty percent of the total firms surveyed were found to be designing their product on their own while remaining 80 percent had replicated the already developed designs with slight modifications [Table 3.39]. Replication is typically the characteristic of the small and medium size firms.

Table 3.39
Product Designing

Firm Size	Self- i.e. In-house R& D	Replication with Slight Modifications	Total
Small	0 (0%)	19 (47.5%)	19 (47.5%)
Medium	6 (15%)	13 (32.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	8 (20%)	32 (80%)	40 (100%)

Source: Authors' Calculations

All the small size firms had replicated the already developed designs of medium and large size firms with some modifications. Of the medium size category, some of the firms shared that designing was done by the firms themselves while most of them shared that they replicated the already developed designs with slight modifications. All the large size firms had designed their products on their own. Overall the industry information shows that only relatively resourceful firms innovate.

3.3.14.8 In-house Research and Development Activities

Proper and continuous R&D activities help to improve the quality of products, facilitate the introduction of new designs in the market and give a competitive edge to the firms over other players in the market. Fifty five percent firms had no in-house R&D facilities while remaining 45 percent firms claimed to be undertaking in-house R&D activities [Table 3.40]. However, the level of R&D activities varies across firm categories.

Table 3.40
R&D Activities

Firm Size	Yes	No	Total
Small	2 (5%)	17 (42.5%)	19 (47.5%)
Medium	14 (35%)	5 (12.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	18 (45%)	22 (55%)	40 (100%)

Source: Authors' Calculations

A disaggregated picture of the data shows that a significantly large number of small size firms were not undertaking any kind of in-house R&D activities, which is quite understandable due to the size of the firms as they concentrated mostly on their survival instead of growth. Few small size firms claimed to be doing some in-house R&D activities. However, these activities were neither undertaken on regular basis nor in a very systematic manner. Moreover, the way these small firms define R&D that is related to slight modifications to the design of the product not with the improvement of the quality of the product or some other form of innovation.

Of the medium size firms, some firms were not undertaking any in-house R&D activities while a fairly large number of firms shared to be doing in-house R&D activities. Though not all, but some of these firms were found to be doing these R&D activities not only on regular basis but also in a very systematic manner. R&D work is related with both

modifications in the design of the product as well as improvement in the quality of the product for remaining in the market.

All the large size firms had undertaken some in-house R&D activities. Their R&D activities were identified to be very systematic. Separate departments were found to be in place. Well equipped labs with computers and the designing software were in place and a specific R&D fund allocation was found to be a significant feature of large size firms.

3.3.14.9 Plans for Increasing the Number of Machines

As the firms' customer base and market penetration increases they tend to increase their production capacity and thus undertake expansion plans. Quires were raised to know if the entrepreneurs intended to increase the number of machines to expand the productive capacity of their units. If they wanted to then what kind of machines would be purchased and would they be domestically made or imported ones.

Table 3.41
Plans to Increase the Number of Machines

Firm Size	Yes	No	Total
Small	12 (30%)	7 (17.5%)	19 (47.5%)
Medium	16 (40%)	3 (7.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	30 (75%)	10 (25%)	40 (100%)

Source: Authors' Calculations

Seventy five percent of the firms surveyed were found to have intentions to increase the number of machines while remaining 25 percent were identified to continue their operations with the same number of machines [Table 3.41]. Seventy percent preferred to purchase new models of machines, 5 percent said they would go for the same models while remaining 25 percent shared not to purchase any machines [Table 3.42].

Table 3.42
Models of Machines

Firm Size	New Models	Same Models	None	Total
Small	11 (27.5%)	1 (2.5%)	7 (17.5%)	19 (47.5%)
Medium	15 (37.5%)	1 (2.5%)	3 (7.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	0 (0%)	2 (5%)
Total	28 (70%)	2 (5%)	10 (25%)	40 (100%)

Source: Authors' Calculations

When questioned if the machines were to be purchased from the local market or to be imported, 20 percent came up with the intention of purchasing machines from the local market, 15 percent showed their intention to import new machines, 32.5 percent were of the view to purchase both local and imported machines, 5 percent responded to go for local and imported machines with an addition of personally modified machines while remaining 2.5 percent were of the view to purchase domestically manufactured machines and also add some attachments to enhance the productive capacity of the machines [Table 3.43]. A disaggregated picture of the data revealed that of the small size category most of the entrepreneurs intended to increase the number of machines and they wanted to buy new models of machines. Some of them wanted to buy locally made machines, some showed their interest in purchasing both local and imported machines, few intended to go for both local and imported machines along with some personally modified ones while remaining few shared to purchase locally made machines and then personally modify some of those machines as required.

Within the medium size group of firms, most of the entrepreneurs were identified to have intentions to increase the number of machines and they had the plans to buy new models of machines. Regarding the made of machines, most of them wanted to buy a combination of locally made and imported machines. Some were interested in buying only imported

Table 3.43
New Machines-Local or Imported

Firm Size	Local	Imported	Local & Imported	Local, Imported & Personally Innovated or Modified	Local & Personally Innovated or Modified	None	Total
Small	6 (15%)	0 (0%)	4 (10%)	1 (2.5%)	1 (2.5%)	7 (17.5%)	19 (47.5%)
Medium	2 (5%)	4 (10%)	9 (22.5%)	1 (2.5%)	0 (0%)	3 (7.5%)	19 (47.5%)
Large	0 (0%)	2 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)
Total	8 (20%)	6 (15%)	13 (32.5%)	2 (5%)	1 (2.5%)	10 (25%)	40 (100%)

Source: Authors' Calculations

machines and few showed their interest in buy both local and imported machines and also add attachments to them as needed by their production process, capacity and features of the product.

Of the large size firm category, all the entrepreneurs were found to have the intentions of expanding their productive capacity and thus to increase the number of machines. Talking about the models and made of new machines they shared that they would prefer to buy new models of imported machines. None of the large size firms wanted to purchase domestically manufactured machines. This is quite understandable for they have the potential and skills to operate the modern high-tech machines.

Another finding related to entrepreneurs running the small and medium size firms is that they were inclined towards purchasing locally made machines. Reason being the nature and level of skills they have access to; were compatible more with locally made (low-tech) machines.

3.3.14.10 Sources of Technological Upgradation

When asked about the driving force behind the technological upgradation 30 percent of the total sample said that technological upgradation was market / consumer driven, 30 percent said that it was self-driven, 20 percent shared that technological upgradation of the firm was both market and self driven, 15 percent shared that technological progress at their manufacturing units was directed by market and self driven along with inspiration from the large size firms and the advices from the colleagues while remaining 5 percent claimed to have undertaken technological upgradation through market and self driven forces and from government initiatives [Table 3.44].

A large number of small size firms were identified to go for technological upgradation only driven by market forces / consumers. Few of them claimed that it was their personal initiative. Another few said that it was both self and market driven. A very small proportion of small size firms had done it from personal end, inspiration from the large size firms and advices / consultation from colleagues.

Table 3.44
Sources of Technological Up-gradation

Firm Size	Market Driven	Self Driven	Market & Self Driven	Market, Self, Large Firms & Colleagues Driven	Market, Self & Government Driven	Total
Small	9 (22.5%)	4 (10%)	4 (10%)	2 (5%)	0 (0%)	19 (47.5%)
Medium	3 (7.5%)	7 (17.5%)	4 (10%)	3 (7.5%)	2 (5%)	19 (47.5%)
Large	0 (0%)	1 (2.5%)	0 (0%)	1 (2.5%)	0 (0%)	2 (5%)
Total	12 (30%)	12 (30%)	8 (20%)	6 (15%)	2 (5%)	40 (100%)

Source: Authors' Calculations

Of the medium size category of firms, personal initiative was identified to be the major source of technological upgradation which was followed by consumers and inspiration from the large size firms along with the advices of technically strong colleagues (labour and entrepreneurs). As far as large size firms are concerned they were found to be undertaking the activity of technological upgradation as driven by personal aspirations, market forces, inspiration from other large size units operating in the industry and in the international markets and discussion and consultation with the experienced colleagues.

3.3.15 Workers

3.3.15.1 Number of Workers

Dynamic entrepreneurs and efficient workers are the real strength of an industry. Workers' characteristics are a critical factor influencing industrial growth and so are the employment practices. In order to know about the workers' characteristics serving in the industry, entrepreneurs were asked that with how many workers they were undertaking their fan making activities and that what was the nature of employment i.e. permanent or seasonal workers.

Table 3.45
Number of Workers

Firm Size	<10	10	11-15	16-20	21-50	51-90	91-150	151-200	351-450	Total
Small	1 (2.5%)	7 (17.5%)	3 (7.5%)	7 (17.5%)	0 (0%)	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	19 (47.5%)
Medium	0 (0%)	0 (0%)	0 (0%)	0 (0%)	7 (17.5%)	7 (17.5%)	3 (7.5%)	2 (5%)	0 (0%)	19 (47.5%)
Large	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	1 (2.5%)	7 (17.5%)	3 (7.5%)	7 (17.5%)	7 (17.5%)	7 (17.5%)	4 (10%)	2 (5%)	2 (5%)	40 (100%)

Source: Authors' Calculations

Of the total sample 2.5 percent revealed to have engaged less than 10 workers, 17.5 percent shared to have engaged 10 workers, 7.5 percent said they were operating with 11-15 workers, 17.5 percent revealed to be undertaking their manufacturing activities by engaging 21-50 workers, 17.5 percent responded to have 51-90 workers, 10 percent shared to have 151-200 workers and remaining 5 percent divulge that they were undertaking their manufacturing activities with 351-450 workers. None of the firms was found to be engaging workers between the ranges of 201-250 and 251-350 [maturity stages of medium size firms] [Table 3.45]

A disaggregated picture of the industry shows that a fairly good number of small size firms were operating with 10 workers and some had employed 16-20 workers. Of the medium size category, most of the firms were found to be operating with 21-50 and 51-90 workers. Some had engaged 91-150 workers while few were found to be operating with 151-200 workers. As far as the large size firms are concerned, all the firms were found to be undertaking their activities with workers ranging from 251 to 350.

3.3.15.2 Training of Workers

To know about the firms' practices regarding the training of workers, the entrepreneurs were asked if they had arranged any kind of training for the workers. Of the total sample, 32.5 percent said that training was arranged for the workers (mostly on job) while remaining 67.5 percent did not arrange any kind of specific training for the workers [Table 3.46]. It shows that most of the employees acquired skills through learning by doing.

Table 3.46
Training of Workers

Firm Size	Yes	No	Total
Small	3 (7.5%)	16 (40%)	19 (47.5%)
Medium	8 (20%)	11 (27.5%)	19 (47.5%)
Large	2 (5%)	0 (0%)	2 (5%)
Total	13 (32.5)	27 (67.5)	40 (100%)

Source: Authors' Calculations

A disaggregated picture of the industry shows that significantly in a large number of small size firms training for skills development and acquisition for workers was not arranged. As compared to small size firms a fairly large number of medium size firms had arranged training for workers to refine their skills. All the large size firms had arranged training for workers.

3.3.15.3 Number of Workers Trained by the Training Institute (Fan Development Institute - Gujrat)

As shown above, (Section 3.1.4) not every fan making firm was aware of the Fan Development Institute. So it is not surprising to note that 72.5 percent of the total sample did not have labour trained by the fan training development institute, 20 percent were identified to be employing 1-5 employees trained by the Fan Development Institute and remaining 7.5 percent employed 11-15 employees trained from the Institute [Table 3.47]

Table 3.47
Workers Trained by Fan Development Institute

Firm Size	Nil	1-5	11-15	Total
Small	17 (42.5%)	2 (5%)	0 (0%)	19 (47.5%)
Medium	12 (30%)	6 (15%)	1 (2.5%)	19 (47.5%)
Large	0 (0%)	0 (0%)	2 (5%)	2 (5%)
Total	29 (72.5%)	8 (20%)	3 (7.5%)	40 (100%)

Source: Authors' Calculations

The disaggregated description of the data for small firms shows that most of the firms did not have any workers trained from the Fan Development Institute. Of the medium size category of firms, a fairly good number of firms were found not to have a single worker with training from the Institute. Some had 1-5 employees, and few had 11-15 workers with

such training. All the large size firms employed 11-15 workers trained by the Institute. This shows that the practice of hiring trained workers from the training institute is not common in the industry; firms rely on informally trained workers instead.

4. Role of Government and other Supporting Institutions

All the entrepreneurs running small, medium and large size firms asserted that they were not supported by the government [Table 3.48]. They claimed that the industry has developed purely due to the personal efforts of the entrepreneurs.

Table 3.48
Support from the Government

Support from Government	Frequency	Percentage
Yes	0	0
No	40	100
Total	40	100

Source: Authors' Calculations

Yet the study highlights that support of government and other supporting agencies like SMEDA, MoST, UNIDO and TDA is there i.e. in the form of the establishment of Fan Development Institute (FDI) in Gujrat. Though FDI is not fully delivering what it was established for, however it indicates the interest of government and other agencies in supporting the fan industry. SMEDA also organizes training sessions at FDI Gujrat for the skill (managerial skills) enhancement of entrepreneurs but these sessions are not well attended by the entrepreneurs due to lack of interest which should have been developed by the management of FDI by launching a campaign about the benefits that FDI could extend to the industry. So, it is suggested that firm size-sensitive training assessment should be conducted in order to identify the set of skills needed at managerial, and/or workers' levels.

CHAPTER 4

DYNAMICS OF GROWTH ORIENTATION OF FAN MAKING FIRMS IN PAKISTAN

This chapter deals with the dynamics of growth orientation of fan making firms of Pakistan. Growth orientation relates to the plan of a firm to grow in terms of production and/or turnover. The chapter starts with the operational definition of the construct to determine the level of growth orientation of a firm. Furthermore, the measurement and evaluation of the statistical significance of association between growth orientation and other variables related to entrepreneurs and firms have also been conducted. For this purpose hypotheses have been developed and tested using chi-square statistic and likelihood ratio. Moreover, cross-tabulations are done to have a feel of the gathered data with reference to growth orientation of firms.

The chapter also includes discussion on qualitative dimensions of growth-oriented firms with a special focus on their capacity utilization. It probes if the firms are operating at full capacity or not? If they are then what allows them to operate so efficiently and if they do not then what are the main hindrances? Moreover, what allows a growth oriented firm to make a leap from one size category and stage of growth to the other which in turn helps a firm to transform from a low-growth oriented firm to a high-growth oriented firm?

Growth of a firm is an important indicator to analyze its performance. In the literature related to firm growth, various measures have been developed and used to analyze the growth dynamics of firms. A frequently used measure of firm's growth is the turnover of a firm. Another indicator is the change in the number of employees. Weinzimmer (2000) has argued that several growth determinants of firms have been developed but researchers have not been able to achieve consensus regarding the relative importance of these factors of growth. Fisher and Reuber (2003) have discussed that paths to growth can differ systematically by firm-level factors such as firm's age. Wood, Watts and Wardle (2004) have come up with the discussion that a growth oriented entrepreneur is the one who seeks to

increase the turnover, targets new customers, develops formal business plans and introduces new processes of technology. Storey (1994) has classified the determinants of firm growth as entrepreneur's growth orientation, adequate resources and existence of market opportunity.

In this study, for the purpose of analyzing the dynamics of growth orientation of firms operating in the fan industry, firms have been categorized as high-growth and low-growth oriented. To determine the level of growth orientation, variables namely; entrepreneurial intentions to expand, plans to increase number of machines and their level of sophistication, current methods of production and their level of sophistication, in-house research and development activities for product refinement and new product development, and the kind and purpose of certifications held by the firms have been taken into consideration. These variables have been assigned scores, and on the basis of these scores firms have been ranked as high-growth oriented and low-growth oriented firms (For details please see Appendix II). Above mentioned variables have been considered for they serve as a benchmark to determine where the firm intends to go on the basis of its present and initial capabilities and capacities.

Table 4.1
Distribution of Sample Firms on the Basis of Growth Orientation

High-Growth Oriented Firms	Low-Growth Oriented Firms	Total Sample Firms
42.5 %	57.5 %	100 %

Source: Authors' Calculations

The summary of calculations given above (Table 4.1) represents that 42.5 percent firms of the total sample are high-growth oriented firms while 57.5 percent are low-growth oriented firms. This show that a fairly significant number of firms are high-growth oriented. This high-growth orientation of firms apart from the variables used to determine firm's growth orientation can also be justified on the basis of the perception of entrepreneurs who have been identified to be optimistic about the future growth of the industry. They consider that growth opportunities exist, and therefore those having potential seem to be convinced enough to exploit this opportunity of expected expanding market for Pakistani fans both in the

domestic and international markets by using their respective current and potential growth competencies and are thus determined to be categorized as managing high-growth oriented firms.

I- Dynamics of Growth Oriented Firms: Quantitative Dimensions

4.1 Firm Size and Firm's Growth Orientation

Firm size and its growth orientation have been observed to be associated with each other. If an entrepreneur is growth oriented and has the resources to expand, assuming other socio-economic factors being constant then firm size and its growth orientation shall move in the same direction. Before the firm size changes it passes through various stages of production i.e. it expands. This expansion is dependent upon a host of internal and external factors affecting firm's growth orientation through entrepreneurial competency, skills and number of employees, number and nature of machines, availability of and access to raw material, effectiveness of business association with industrial organizations, government policies etc.

It is posited that firm size and growth orientation are associated.

Table 4.2 a
Statistical Measures: Firm Size and Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	11.571	0.003
Likelihood Ratio	12.966	0.002

Statistically, values of chi-square and of likelihood ratio (Table 4.2 a) show that there is significant association between firms' size and their growth orientation in the industry.

Table 4.2 b
Firm Size and Growth Orientation

Level of Growth Orientation	Small	Medium	Large	Total
High-Growth Oriented	3 (7.5%)	12 (30%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	16 (40%)	7 (17.5%)	0 (0%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.2 b) shows that, out of the high-growth oriented firms, 7.5 percent are small, 30 percent are medium size and 5 percent are large size firms. Of the low-growth oriented firms 40 percent are identified to be small and 17.5 percent as medium size firms. None of the large size firms is low-growth oriented firm. It represents that all the large size firms and some medium size firms have high-growth orientation while majority of the small size firms and some medium size firms are low-growth oriented firms.

Such kind of behaviour of firms is justified with reference to the resources firms hold. As it varies from firm to firm and size wise as well. Firms with higher resource base (inputs like raw material, skills, better technological capabilities and other factors like well established brand names and secure markets) are found to be high-growth oriented firms.

4.2 Type of Ownership and Firm's Growth Orientation

Type of ownership may enable a firm to achieve higher level of growth orientation if it eases the procedures of operations, allows free flow of information and serves as confidence building measure between the employee and workers. To identify the presence or absence of association between ownership type and firm's growth orientation it has been hypothesized that ***firm's type of ownership and growth orientation are associated.***

Table 4.3 a
Statistical Measures: Type of Ownership and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	0.796	0.850
Likelihood Ratio	1.164	0.762

The values of chi-square and of likelihood ratio (Table 4.3 a) as measured using the collected data show that there is not any statistically significant association between the growth orientation of firms and their type of ownership in the fan industry.

Table 4.3 b
Type of Ownership and Firm's Growth Orientation

Level of Growth Orientation	Sole-Proprietorship	Partnership	Private Limited Company	Public Limited Company	Total
High-Growth Oriented	9 (22.5%)	7 (17.5%)	1 (2.5%)	0 (0%)	17 (42.5%)
Low-Growth Oriented	12 (30%)	9 (22.5%)	1 (2.5%)	1 (2.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated (Table 4.3 b) information reveals that of the high-growth oriented firms, 22.5 percent are being managed as sole proprietorships; 17.5 percent as partnerships and 2.5 percent are administered as private limited companies. None of the high-growth oriented firms have been identified to be operating as public limited company. Of the low-growth oriented firms, 30 percent are administered as sole proprietorship, 22.5 percent are managed as partnerships, 2.5 percent are carrying out their operations as private limited companies and another 2.5 percent are administered as public limited companies. Most of both high and low-growth oriented firms are operating as sole proprietorship yet the type of ownership does not have significant association with firm's growth orientation in the industry.

4.3 Entrepreneurial Competence and Firm's Growth Orientation

Entrepreneurial competencies are vital for determining and analyzing firm's growth potential and pattern. These competencies being heterogeneous in nature allow the entrepreneurs to operate in their respective spheres of expertise according to their strengths and weaknesses to exploit opportunities and minimize threats in such a way as to make their venture competitive in the market.

4.3.1 Education

Education helps to refine and use personal faculties of an entrepreneur to exploit market opportunities. A better educated entrepreneur becomes capable to gather more and more useful market information and refine his skills to make effective decisions to solve various

business problems and enable the firm to grow and become competitive in the face of exiting and upcoming market opportunities.

It is posited that ***education of an entrepreneur and growth orientation of firm are associated.***

Table 4.4 a
Statistical Measures: Education of an Entrepreneur and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	6.013	0.014
Likelihood Ratio	7.456	0.006

As the values of chi-square and of likelihood ratio show (Table 4.4 a), there is significant association between education of entrepreneurs and growth orientation of firms in the industry. However, at the same time important findings emerge from the study i.e. for being high-growth oriented it is not compulsory that an entrepreneur is educated. The industry contains examples of high-growth oriented firms being managed by illiterate entrepreneurs. They have been able to gain high level of growth orientation on the basis of their professional experience, assisted by professional business managers.

Table 4.4 b
Education of an Entrepreneur and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	13 (32.5%)	4 (10%)	17 (42.5%)
Low-Growth Oriented	23 (57.5%)	0 (0%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.4 b) shows that 32.5 percent of the high-growth oriented firms are run by educated entrepreneurs. Though 10 percent firms are run by illiterate entrepreneurs yet they are high-growth

oriented. When probed why it is so, it was identified that though the entrepreneurs are not educated but they are assisted by their professional experience and the next generation of entrepreneurs who are better educated having better exposure to the markets and capabilities to exploit the available opportunities. All the low-growth oriented firms are managed by educated entrepreneurs. Thus they are found to be facing barriers to growth due to other factors, and not due to the education of entrepreneurs.

4.3.2 Initial Knowledge of Technical Skills

Experience of an entrepreneur, of the same industry or of the related one, plays a very important role in the survival and growth of a firm. For an experienced entrepreneur, industry related experience increases the probability of meeting the existing and emerging challenges in an efficient manner. It enables the entrepreneur to exploit the exiting and potential opportunities in a better way and gain a competitive edge over others on the basis of knowledge of skills and experience. A better equipped entrepreneur with good knowledge of skills right at the startup stage of the business shall be able to concentrate much on other aspects of business to make it grow instead of focusing on skills development and refinement.

It is posited that ***the better equipped an entrepreneur is with skills at the startup stage the more growth oriented the firm becomes.***

Table 4.5 a
Statistical Measures: Entrepreneur's Initial knowledge of Technical Skills and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	2.148	0.143
Likelihood Ratio	2.236	0.135

Statistically the values of chi-square and of likelihood ratio show (Table 4.5 a) that there is not a very significant association between firms' growth orientation and the initial knowledge of technical skills held by entrepreneurs in the fan industry.

Table 4.5 b
Entrepreneur's Initial knowledge of Technical Skills and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	14 (35%)	3 (7.5%)	17 (42.5%)
Low-Growth Oriented	14 (35%)	9 (22.5%)	23 (57.5%)

Source: Authors' Calculations

Findings that emerge from cross-tabulation (Table 4.5 b) show that 35 percent of the sample firms are high-growth oriented and are run by those entrepreneurs who had knowledge of technical skills before starting the fan making business and 7.5 percent are those which are operated by entrepreneurs not having any knowledge of technical skills before starting the fan making business. Those who had knowledge of technical skills, most of them learnt those skills through informal sources of learning i.e. *Ustad-Shagird* system and family background.

As far as low-growth oriented firms are concerned, 35 percent of those are operated by entrepreneurs who had knowledge of technical skills before starting the fan making business while remaining 22.5 percent have been identified to be managed by entrepreneurs having no initial knowledge of technical skills. In the case of low-growth oriented firms, majority of the entrepreneurs have been identified to have learnt those skills through informal sources i.e. *Ustad-Shagird* system and family background while few have learned through formal sources i.e. from technical and vocational institutes.

Fairly a significant number of high-growth oriented firms are managed by those entrepreneurs who had knowledge of technical skills by the time they started the business. Few are identified to have started off without learning any technical skills. Most of the low-growth oriented firms are operated by entrepreneurs who had knowledge of technical skills by the time they stepped into the industry. However, some of them started their ventures without knowing any technical skills.

4.3.3 Technical Skills Acquisition during Business

It is not sufficient that an entrepreneur has prior technical skills and only on the basis of that is, able to expand the business. Skill learning is a continuous process and adds value to the competitive edge of the firm. It is therefore compulsory for an entrepreneur to keep on improving his industry specific skills. This enables an entrepreneur to exploit unexploited and emerging opportunities in the market.

It is posited that ***skill acquisition after starting the business and growth orientation of a firm are associated.***

Table 4.6 a
Statistical Measures: Skills Acquisition during Business and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	1.556	0.212
Likelihood Ratio	2.291	0.130

The values of chi-square and of likelihood ratio show (Table 4.6 a) that there does not exist a statistically significant association between skills acquisition of entrepreneurs during business and firms' growth orientation in the industry.

Table 4.6 b
Skills Acquisition during Business and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	17 (42.5%)	0 (0%)	17 (42.5%)
Low-Growth Oriented	21 (52.5%)	2 (5%)	23 (57.5%)

Sources: Authors' Calculations

Cross-tabulated information (Table 4.6 b) reveals that all the high-growth oriented firms (42.5 percent) are managed by those entrepreneurs who have acquired and refined their skills during business. Main source of

skills acquisition is found to be informal source i.e. *Ustad-Shagird* system and family background while few entrepreneurs have been identified to have acquired technical skills during business through formal sources of training i.e. from technical or vocational institutes. Yet some are found to have acquired technical skills through 'learning by doing'.

Of the low-growth oriented firms, 52.5 percent are managed by entrepreneurs who have acquired technical skills during business while 5 percent are those which are operated by entrepreneurs who have not acquired skills during business. Those who are identified to be claiming for not acquiring skills during business opine that they consider themselves so skilled enough that they do not need any more training. Main source of skill acquisition of the entrepreneurs running low-growth oriented firms has been informal i.e. *Ustad-Shagird* system and family background. Some are also found to have acquired skills through 'learning by doing'.

This shows that the growth orientation of firms in the fan industry is not significantly affected by the skills acquisition of entrepreneurs during business but is determined by some other factors like entrepreneurial intentions to expand, plans to increase the number of machines and their level of sophistication, current methods of production and their level of sophistication, in-house research and development activities for product refinement and new product development, and the kind and purpose of certifications held by the firms etc.

Why is it so? The presence or absence of skills held by an entrepreneur and their acquisition is of great importance for determining the performance of a firm. In case of Pakistan's fan industry, it has been observed that absence of such skills can be substituted. The main source of compensation is the availability of skilled labour. The industry houses firms which are managed by entrepreneurs who neither had skills at the startup stage nor did they focus much to acquire those skills after establishing their ventures but had finance. They hired better skilled labourers (foremen) and using their skills, by complementing them with their personal managerial capabilities and technological base of the firm, they have been able to run a venture successfully. So skills acquisition for entrepreneurs during business for determining the growth orientation of firms is not a necessary condition for the industry.

4.4 Financial Resources for Start-up and Firm's Growth Orientation

Acquisition of financial resources is of significant importance for a growth oriented firm. Its importance increases even more in case of a high-growth oriented firm. As firms become able to raise more finance they generally tend to grow fast. It is a very tedious job for entrepreneurs to identify the suitable sources of finance. Mostly observed sources of finance for SMEs are personal savings, help from friends and family, access to financial institutions, industry support programmes etc.

Table 4.7 a
Statistical Measures: Initial Financial Resources and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	5.047	0.410
Likelihood Ratio	6.523	0.259

The statistical computations (Table 4.7 a) measured from the gathered information about the industry show that growth orientation of firms and the initial sources of finance are not significantly associated.

Cross-tabulated information (Table 4.7 b) reveals that 25 percent high-growth oriented firms were established by entrepreneurs using personal finance. 2.5 percent were started with the financial help of friends and family and another 2.5 percent were established with the support from banks or other financial institutions. 7.5 percent were established with the help of personal sources and support of friends and family. 5 percent high-growth oriented firms were started with the help of a combination of presently held personal finance and past savings. 27.5 percent firms which are low-growth oriented firms were established with the financial sources held by the entrepreneurs personally. 5 percent low-growth oriented firms were established with past savings of the entrepreneurs. 12.5 percent were started by using personal finances and support from friends and family. Another 12.5 percent of low-growth oriented firms were established with the personal finances presently held by the entrepreneurs as well as their past savings.

Table 4.7 b
Initial Financial Resources and Firm's Growth Orientation

Level of Growth Orientation	Personal	Friends or Family	Past Savings	Banks or other Financial Institutions	Personal and Friends or Family	Personal & Past Savings	Total
High-Growth Oriented	10 (25%)	1 (2.5%)	0 (0%)	1 (2.5%)	3 (7.5%)	2 (5%)	**17 (42.5%)**
Low-Growth Oriented	11 (27.5%)	0 (0%)	2 (5%)	0 (0%)	5 (12.5%)	5 (12.5%)	**23 (57.5%)**

Source: Authors' Calculations

Industrial observations highlight that approaching the financial institutions, for establishing a new venture, is not a common practice in the fan industry. One reason is that entrepreneurs want to avoid the cumbersome processing of documents to meet the requirements of financial institutes for financial assistance. Religiously some entrepreneurs have been avoiding going for interest-based financial support from the commercial banks as they wanted to avoid the interest related practices which are against the spirit of Islam.

A significant element to mention here is that even at present, for financial needs firms avoid to approach banks / financial institutions. Instead financial requirements are met through retained earnings, support from friends and family or by delayed payments on the basis of trust as developed over time through good dealing practices with input suppliers or dealers buying the final product.

4.5 Output Range and Firm's Growth Orientation

A growth oriented firm pools up resources to expand. This enables a firm to increase its output range. As a firm grows and passes through various stages of growth; it increases its output range and expands firstly by remaining within the same size category and ultimately makes a leap and crosses the barriers to growth thus shifts from small size to the medium and from medium to the large size category depending upon its growth competencies.

It is posited that ***there is an association between output range and growth orientation of a firm.***

Table 4.8 a
Statistical Measures: Output Range and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	16.324	0.022
Likelihood Ratio	20.688	0.004

Statistically the values of chi-square and of likelihood ratio show (Table 4.8 a) that there exists a significant association between growth orientation and output range of firms in the fan industry.

Table 4.8 b
Output Range and Firm's Growth Orientation

Level of Growth Orientation	800-5000	5001-10000	10001-20000	20001-50000	50001-90000	90001-150000	150001-200000	500001-750000	Total
High-Growth Oriented	1 (2.5%)	1 (2.5%)	0 (0%)	4 (10%)	4 (10%)	3 (7.5%)	2 (5%)	2 (5%)	**17 (42.5%)**
Low-Growth Oriented	6 (15%)	3 (7.5%)	7 (17.5%)	3 (7.5%)	3 (7.5%)	1 (2.5%)	0 (0%)	0 (0%)	**23 (57.5%)**

Source: Authors' Calculations

Cross-tabulations (Table 4.8 b) show that of the total sample, 2.5 percent high-growth oriented firms are operating with an output range of 800-5,000 fans per annum. Another 2.5 percent are operating with an output range of 5,001-10,000 fans per annum. None of the high-growth oriented firms is operating with an output range of 10,000-20,000 fans per annum. 10 percent are found to be operating with an output range of 20,001-50,000. Another 10 percent are operating with an output range of 50,001-90,000 fans per annum. 7.5 percent firms are being operated with an output range of 90,001-150,000 fans per annum. 5 percent are operating with an output range of 150,001-200,000 fans per annum and another 5 percent are found to fall within the output range of 500,001-750,000 fans per annum. However, none of the high-growth firms is found to be operating within the output range of 200,001-500,000 fans per annum. This shows that high-growth orientation of firms and firms' output range are significantly associated with each other and it is prevalent in all the categories of firm sizes.

While talking about low-growth oriented firms, 15 percent firms are found to be operating with an output range of 800-5000 fans per annum. 7.5 percent are being operated with an output range of 5,001-10,000 fans. 17.5 percent are carrying out their production within the production range of 10,001-20,000 fans. 7.5 percent are working with an output range of 20,001-50,000 fans and another 7.5 percent are operating with an output range of 50,001-90,000 fans. 2.5 percent are those low-growth oriented firms which are found to be operating with an output range of 90,001-150,000 fans per annum. All the low-growth oriented firms are those which fall in the category of small and medium size as determined by the study.

4.6 Products Quality and Firm's Growth Orientation

It has been observed that as a firm grows it also improves the quality of its product. Product quality of a firm improves with an improvement in the quality of inputs. It means that product quality is dependent upon the nature and extent of technological competency of a firm, skills of entrepreneur and of workers, quality of raw material being used etc.

It is posited that ***product quality and growth orientation of a firm are associated.***

Table 4.9 a
Statistical Measures: Products Quality and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	7.434	0.024
Likelihood Ratio	9.987	0.007

The values of chi-square and of likelihood ratio (Table 4.9 a) as computed form the gathered data show that there exists a significant association between firms' growth orientation and the quality of the product being produced. It implies that high-growth oriented firms tend to produce better quality fans in Pakistan.

Table 4.9 b
Products Quality and Firm's Growth Orientation

Level of Growth Orientation	Fair	Good	Excellent	Total
High-Growth Oriented	0 (0%)	11 (27.5%)	6 (15%)	17 (42.5%)
Low-Growth Oriented	7 (17.5%)	13 (32.5%)	3 (7.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.9 b) reveals that of the total sample none of the high-growth oriented firms is producing fair or comparatively low quality fans. 27.5 percent are manufacturing good quality fans and 15 percent are producing fans of excellent quality. 17.5 percent are the low-growth oriented firms which are producing fair or comparatively low quality fans. 32.5 percent are those which are producing good quality fans and 7.5 percent are identified to be producing fans of excellent quality. These low-growth oriented firms are the ones which are keeping pace with the changes emerging in the industry and are meeting the challenges in a better way to become competitive in the industry. Most of these are medium size firms having potential to grow and diversify. Most of the high-growth and low-growth oriented firms are involved in the production of good quality fans. It shows that more growth oriented a fan manufacturing unit tends to be the better quality fans it produces.

4.7 Type of Market Served and Firm's Growth Orientation

As the firm grows and its production increases; along with producing good quality products it also starts to penetrate into newer markets where opportunity to earn more and more profits exist and the firm tries to out-compete others on the basis of its competence. It therefore expands its geographical boundaries and starts to serve more and more markets. The more diversified markets a firm operates in the more growth oriented it becomes. Geographical diversification brings customers of diversified tastes and allows firms to meet these diverse customer requirements according to their competence. A high-growth oriented firm having comparatively better competence becomes able to serve more and more markets by making a product in line with customers' taste and requirement.

It has been hypothesizes that ***there is an association between the type of market being served and growth orientation of a firm.***

Table 4.10 a
Statistical Measures: Type of Market Served and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	7.821	0.005
Likelihood Ratio	8.052	0.005

The values of chi-square and of likelihood ratio (Table 4.10 a) show that there exists a statistically significant association between the growth orientation of firms and the type of market being served.

Table 4.10 b
Type of Market Served and Firm's Growth Orientation

Level of Growth Orientation	Domestic	Domestic and International	Total
High-Growth Oriented	5 (12.5%)	12 (30%)	17 (42.5%)
Low-Growth Oriented	17 (42.5%)	6 (15%)	23 (57.5%)

Source: Authors' Calculations

The information as cross-tabulated (Table 4.10 b) shows that 12.5 percent firms are those high-growth oriented firms which are operating in the domestic market only. 30 percent are those which are operating both in the domestic and international markets. Of the total sample, 42.5 percent firms are those low-growth oriented firms which are operating in domestic market only while remaining 15 percent are serving both the local and international markets. This shows that most of the high-growth oriented firms are expanding their geographical boundaries and making penetration in new and already served markets both at national and international levels.

4.8 Number and Nature of Machines and Firm's Growth Orientation

Growth of a firm calls for an increase in number of machines and requires the engagement of high-tech (generally imported in case of developing economies) machines to meet the expansion targets. As the firm enters into the phase of growth it starts to face more competition and to become and remain competitive, it is required to improve the quality of product and therefore of inputs. Thus it becomes a necessary condition for the survival of firm in the face of already well established players of the market that it introduces more and better technology machines so as to meet the production targets along with the production of quality product.

It is conjectured that ***the number and nature of machines held by a firm and its growth orientation are associated with each other.***

Table 4.11 a
Statistical Measures: Number of Machines and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	15.902	0.069
Likelihood Ratio	21.049	0.012

Table 4.11 b
Number of Machines and Firm's Growth Orientation

Level of Growth Orientation	<8	8-10	11-12	13-15	16-30	31-50	51-90	91-150	201-300	301-400	Total
High-Growth Oriented	1 (2.5%)	0 (0%)	1 (2.5%)	0 (0%)	5 (12.5%)	2 (5%)	3 (7.5%)	2 (5%)	1 (2.5%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	1 (2.5%)	4 (10%)	3 (7.5%)	7 (17.5%)	4 (10%)	2 (5%)	1 (2.5%)	1 (2.5%)	0 (0%)	0 (0%)	23 (57.5%)

Source: Authors' Calculations

Table 4.12 a
Statistical Measures: Nature of Machines and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	15.920	0.000
Likelihood Ratio	21.007	0.000

Table 4.12 b
Nature of Machines and Firm's Growth Orientation

Level of Growth Orientation	Local	Local and Imported	Total
High-Growth Oriented	0 (0%)	17 (42.5%)	17 (42.5%)
Low-Growth Oriented	14 (35%)	9 (22.5%)	23 (57.5%)

Source: Authors' Calculations

The values of chi-square and of likelihood ratio (Table 4.11 a and 4.12 a) show that there exists a statistically significant association between growth orientation and number and nature of machines (local or imported i.e. low-tech or high-tech) held by the firms. This implies that as the firm grows so does the number of machines and the level of technology (imported / high-tech machines are made a part of firm's operations).

Cross-tabulated information for firm's growth orientation and number of machines shows (Table 4.11 b) that 2.5 percent are those high-growth oriented firms which are operating with less than eight machines. These are the firms which were operating exceptionally well and due to some issues (family clashes) had to warp up their operations. Now again they are in the market and entrepreneurs having vital expertise on the basis of their long association with the industry are motivated enough to have started a new journey to growth to become a major player of the market. 2.5 percent firms are managing their operations with 11-12 machines. 12.5 percent own 16-30 machines. 5 percent own 31-50 machines. 7.5 percent own 51-90 machines. 5 percent own 91-150 machines. 2.5 percent own 201-300

machines. Remaining 5 percent are undertaking their production activities with 301-400 machines.

Talking about the low-growth oriented firms, 2.5 percent own less than 8 machines, 10 percent have 8-10 machines, 7.5 percent have 11-12 machines, 17.5 percent have 13-15 machines, 10 percent own 16-30 machines, 5 percent own 31-50 machines, 2.5 percent have 51-90 machines and another 2.5 percent are using 91-150 machines.

Cross-tabulated information for firm's growth orientation and nature of machines (Table 4.12 b) held by the firm shows that all the high-growth oriented firms use a combination of both local and imported machines. However, the level of technological sophistication varies as the firm's size and its growth orientation changes. It has been observed that high-growth oriented firms use comparatively advanced and better technology machines. Talking about low-growth oriented firms it has been observed that 35 percent are using only locally made low-tech machines while 22.5 percent are using a combination of both local and imported machines i.e. both low-tech and high-tech machines. Those using high-tech machines are the ones having intentions to expand and move high on the trajectory of growth.

Overall, the current competency of the firms shows that those having comparatively better technology machines are more enthusiastic to grow and are the optimizers. On the other hand, most of the low-growth firms are satisfiers, few are optimizers. It has been observed that some of the low-growth oriented firms, though small and medium in size, are growing and their expansion plans are in place and they shall emerge as success stories of high-growth oriented firms.

4.9 Intentions for Purchasing New Machinery and Firm's Growth Orientation

One of the characteristics of a growing firm is that as it grows it tends to purchase new machinery and generally new models of machines i.e. high-tech machines.

It is posited that ***there is an association between intentions of an entrepreneur to increase number of machines and growth orientation of a firm. Also, the purchase of high-tech machinery and growth orientation of a firm are associated with each other.***

Table 4.13 a
Statistical Measures: Intentions for Purchasing New Machines and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	9.855	0.002
Likelihood Ratio	13.494	0.000

The values of chi-square and of likelihood ratio (Table 4.13 a and 4.14 a) show that there is statistically significant association between entrepreneurs' intentions to increase the number of machines and growth orientation of firm. Similarly, statistically significant association has been identified between purchasing of new models of machines i.e. high-tech machines and the growth orientation of firms in the industry.

Table 4.13 b
Intentions for Purchasing New Machines and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	17 (42.5%)	0 (0%)	17 (42.5%)
Low-Growth Oriented	13 (32.5%)	10 (25%)	23 (57.5%)

Source: Authors' Calculations

Table 4.14 a
Statistical Measures: Nature of New Machines and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	12.671	0.002
Likelihood Ratio	17.028	0.000

Table 4.14 b
Nature of New Machines and Firm's Growth Orientation

Level of Growth Orientation	New Models	Nil	Same Models	Total
High-Growth Oriented	17 (42.5%)	0 (0%)	0 (0%)	17 (42.5%)
Low-Growth Oriented	11 (27.5%)	10 (25%)	2 (5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.13 b and 4.14 b) reveals that all the entrepreneurs running high-growth oriented firms intend to increase the number of machines and they all want to purchase new models of machines i.e. better technology (high-tech) machines. Talking about low-growth oriented firms, 32.5 percent of the entrepreneurs want to increase the number of machines. As far as the nature of machines is concerned 27.5 are those which want to purchase new models of machines i.e. high-tech machines and 5 percent want to buy the same models of machines.

When probed why they wanted to have the same models of machines, it was identified that they did not have the skills to operate high-tech machines. It shows that firms, though not all, operating in the industry are trapped in the issue of compatibility of nature of skills and the level of technology.

4.10 Source of Technological Up-gradation and Firm's Growth Orientation

Technological up-gradation is a characteristic of a growing firm. An entrepreneur having intentions to grow fast and remain a major player in the market shall try to introduce better technology machines to manufacture better quality products. Entrepreneurs have been observed to up-grade the technological level of their firms through a very systematic manner i.e. on regular basis they introduce new technologies as a practice (typically a characteristic of large size firms and of few growing medium size firms). However, technological up-gradation can be a need based activity as well

i.e. customers' requirements may make an entrepreneur to change its technological base to make a product which meets the requirements as demanded by the customers. At times there can an initiative from the government side as well to increase the technological base of an industry.

To identify and determine if the growth orientation of a firm is associated with the sources of technological up-gradation, it has been hypothesized that ***sources of technological up-gradation of a firm and its growth orientation are associated.***

Table 4.15 a
Statistical Measures: Technological Up-gradation and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	3.171	0.530
Likelihood Ratio	3.251	0.517

The values of chi-square and of likelihood ratio (Table 4.15 a) show that in case of Pakistan's fans industry there is not any statistically significant association between growth orientation of firms and the source of technological up-gradation.

Table 4.15 b
Technological Up-gradation and Firm's Growth Orientation

Level of Growth Orientation	Market Driven	Self Driven	Market & Self Driven	Market, Self, Large Firms & Colleagues	Market, Self & Government Driven	Total
High-Growth Oriented	3 (7.5%)	5 (12.5%)	4 (10%)	4 (10%)	1 (2.5%)	17 (42.5%)
Low-Growth Oriented	9 (22.5%)	7 (17.5%)	4 (10%)	2 (5%)	1 (2.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.15 b) reveals that 7.5 percent are those high-growth oriented firms which upgrade their technological level

as driven by the market i.e. consumers' demand make the firm to change its technological base. 12.5 percent take initiatives on their own to upgrade their technological level. 10 percent go for technological up-gradation as driven by consumers and their personal initiatives. Another 10 percent are identified to be doing technological up-gradation as driven by consumers and large firms along with their personal initiatives and advice of colleagues. Remaining 2.5 percent are those firms which upgrade their technological level as driven by consumers and through their personal and governmental initiatives.

Coming to the low-growth oriented firms, 22.5 percent are identified to upgrade their technological level as driven by the market. 17.5 percent take initiatives to upgrade their technological level at personal level. 10 percent go for technological up-gradation as driven by consumers and their personal initiatives. 5 percent are identified to be doing technological up-gradation as driven by consumers and large firms along with their personal initiatives and advice of colleagues. Remaining 2.5 percent are those firms which up-grade their technological level as driven by consumers and through their personal and governmental initiatives.

This shows that there is not any significant and unified source of technological up-gradation in the fan industry. It is a multidimensional process which is driven by a combination of forces / factors.

4.11 Research and Development Activities and Firm's Growth Orientation

Research and development activity is a permanent feature of any growth oriented firm. However, the extent of R&D activity varies with reference to the change in firm's size. Large size firms are generally observed to be having in-house R&D capabilities and they carry out this activity on regular basis. However, some medium size growth oriented firms do the same but small size firms relay on others for R&D activities and they are found to be replicators instead of innovators.

It is posited that ***R&D activities and growth orientation of a firm are associated with each other.***

Table 4.16 a
Statistical Measures: R&D Activities and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	22.330	0.000
Likelihood Ratio	24.924	0.000

Statically the values of chi-square and of likelihood ratio (Table 4.16 a) show that there is significant association between firm's growth orientation and R&D activities.

Table 4.16 b
R&D Activities and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	15 (37.5%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	3 (7.5%)	20 (57.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.16 b) reveals that 37.5 percent are those high-growth oriented firms which undertake in-house R&D activities and remaining 5 percent do not undertake this exercise. On the other hand, 7.5 percent are those low-growth oriented firms which are identified to be undertaking in-house R&D activities while remaining 57.5 percent are found to be operating without any in-house R&D activities. It shows that typically the exercise of R&D is a characteristic of high-growth oriented firms in the fan industry.

The nature of R&D activities in the fan industry is correlated with the size of firms as well. Large size firms carry out R&D activities to innovate on regular basis and for that purpose they have specified an R&D head of expenditure. Few medium size firms do the same while most of them do R&D to replicate designs of large size firms. Hardly any small size firm goes for innovation through R&D activities. They all are imitators.

4.12 Product Diversification and Firm's Growth Orientation

It has been observed that as the firms grow and get enriched with resources they start to produce a range of products, though not necessarily, in line with their production capacity as well as capability.

It is posited that ***product diversification and firm's growth orientation are associated with each other.***

Table 4.17 a
Statistical Measures: Product Diversification and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	7.945	0.337
Likelihood Ratio	9.766	0.202

The values of chi-square and of likelihood ratio (Table 4.17 a) show that there does not exist any statistically significant association between firms' growth orientation and their level of diversification in the fan industry. It does not mean firms operating in the industry do not diversify. They do but the extent of diversification is not very high for all the firms.

Cross-tabulated (Table 4.17 b) information reveals that 20 percent are those high-growth oriented firms which are manufacturing fans only. 2.5 percent are involved in the production of fans and washing machines. 10 percent are producing fans, washing and skimming machines. 5 percent are making fans, washing and skimming machines and motorbikes. 2.5 percent are manufacturing fans and fans parts i.e. they are operating as fan manufacturers as well as providing services for outsourcing and remaining 2.5 percent are making fans, washing machines, room cooler and gas appliances.

Focusing on the low-growth oriented firms, 40 percent are manufacturing fans only. 5 percent are producing fans and washing machines. Another 5 percent are involved in the production of fans, washing and skimming machines. 2.5 percent are making fans and fan parts. 2.5 percent are manufacturing fans, small and industrial motors and transformers. Remaining 2.5 percent are manufacturing fans and water pumps.

Table 4.17 b
Product Diversification and Firm's Growth Orientation

Level of Growth Orientation	Fans	Fans & Washing Machines	Fans, Washing & Skimming Machines	Fans, Washing & Skimming Machines & Motor Bikes etc.	Fans & Fan Parts for Itself & Others	Fans, Small & Industrial Motors & Transformers	Fans & Water Pumps	Fans, Washing Machines, Air Coolers & Gas Appliances	Total
High-Growth Oriented	8 (20%)	1 (2.5%)	4 (10%)	2 (5%)	1 (2.5%)	0 (0%)	0 (0%)	1 (2.5%)	17 (42.5%)
Low-Growth Oriented	16 (40%)	2 (5%)	2 (5%)	0 (0%)	1 (2.5%)	1 (2.5%)	1 (2.5%)	0 (0%)	23 (57.5%)

Source: Authors' Calculations

The figures show that most of the firms operating in the industry are concentrating on the production of fans. Though the presence of diversification is there but it is not very significant.

4.13 Certification for Standardization and Firm's Growth Orientation

As a firm grows it tends to introduce new management practices and go for having certifications for product standardization in order to expand its operations and enters into new markets (especially international markets). These certifications help a firm to gain a competitive position in the market by targeting those customers which can not be targeted by those without certifications.

It is posited that ***certification for standardization and firm's growth orientation are associated with each other.***

Table 4.18 a
Statistical Measures: Certification for Standardization and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	11.831	0.001
Likelihood Ratio	12.416	0.002

The values of chi-square and of likelihood ratio (Table 4.18 a) as computed from the gathered data show the presence of significant association between growth orientation of firms and their holding of certification for standardization

Table 4.18 b
Certification for Standardization and Firm's Growth Orientation

Level of Growth Orientation	Yes	No	Total
High-Growth Oriented	13 (32.5%)	4 (10%)	17 (42.5%)
Low-Growth Oriented	5 (12.5%)	18 (45%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.18 b) reveals that 32.5 percent are those high-growth oriented firms which have certifications and 10 percent are operating without certifications. Of the low-growth oriented firms 12.5 percent are identified to be holding certifications and remaining 45 percent are operating without any certifications. Those holding certifications shared that they got certified in order to improve their management practices, to target international markets or for both the purposes. It shows that as the firms go for more and more certifications the more growth oriented they tend to become.

4.14 Future Demand Forecast and Firm's Growth Orientation

High-growth oriented firms tend to face a growing demand for their products. When a firm grows, it not only improves the quality of its products but also targets new markets and attracts new customers as well. All this, if welcomed by the customers, tends to increase the current and future demand for the firm's product.

It is conjectured that ***future demand pattern of a firm's product and its growth orientation are associated with each other.***

Table 4.19 a
Statistical Measures: Future Demand Forecast and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	7.391	0.025
Likelihood Ratio	10.312	0.006

Statistically the values of chi-square and of likelihood ratio (Table 4.19 a) show a significant association between firms' future demand pattern and their growth orientation.

Cross-tabulated information (Table 4.19 b) reveals that all the high-growth oriented firms are expecting an increasing trend in the demand for their product so they want to expand their capacity and grow. As far as the low-growth oriented firms are concerned 37.5 percent are identified to be expecting an increasing trend in the demand for their product. 12.5 percent were identified to be expecting to face a decreasing trend in the future demand for their product. Remaining 7.5 percent are found to be expecting

Table 4.19 b
Future Demand Forecast and Firm's Growth Orientation

Level of Growth Orientation	Increasing	Decreasing	Constant	Total
High-Growth Oriented	17 (42.5%)	0 (0%)	0 (0%)	17 (42.5%)
Low-Growth Oriented	15 (37.5%)	5 (12.5%)	3 (7.5%)	23 (57.5%)

Source: Authors' Calculations

no change in the demand for their product in future. So higher the expectations for an increase in the future demand for the product more growth oriented the firms tend to become as they shall be increasing both their capacities and the quality of their products by introducing new and better technology machines.

4.15 Product Designing and Firm's Growth Orientation

High-growth oriented firms are observed to be developing their own product designs to remain distinctive in the market and gain a competitive edge over others on the basis of their own designs. Moreover, high-growth firms tend to introduce new designs of products on regular basis.

It is conjectured that ***product designing activity and growth orientation of a firm are associated.***

Table 4.20 a
Statistical Measures: Product Designing and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	4.322	.038
Likelihood Ratio	4.368	.093

Statistically the values of chi-square and of likelihood ratio (Table 4.20 a) show that there is significant association between firms' growth orientation and their ability to design their products.

Table 4.20 b
Product Designing and Firm's Growth Orientation

Level of Growth Orientation	Self i.e. In-house R&D	Replication with Modifications	Total
High-Growth Oriented	6 (15%)	11 (27.5%)	17 (42.5%)
Low-Growth Oriented	2 (5%)	21 (52.5%)	23 (57.5%)

Source: Authors' Calculations

High-growth oriented firms operating in the industry are observed to be introducing new designs every year. However, of these firms, all the firms do not develop new designs on their own. Few firms, particularly large size firms, do product designing on their own while others replicate the already developed designs with some modifications to mark their distinction in the market.

Cross-tabulated information (Table 4.20 b) shows that 15 percent are those high-growth oriented firms which design their products on their own whereas 27.5 percent firms replicate already developed designs according to their own requirements. As far as the low-growth oriented firms are concerned, 5 percent firms design their products on their own while remaining 52.5 percent replicate already developed designs. It has also been observed that those low-growth oriented firms which follow the practice to replicate, their level of modification is much lower as compared to the high-growth oriented firms which go for replication. Moreover, the practice of outsourcing and the dependency on part manufacturers does not give the low-growth oriented firms much room to make significant changes in the design of the products while replication.

4.16 Number of Workers and Firm's Growth Orientation

As a firm grows and expands its operations it tends to hire more and more workers.

It is posited that ***number of workers and growth orientation of a firm are associated with each other.***

Table 4.21 a
Statistical Measures: Number of Workers and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	16.665	0.034
Likelihood Ratio	21.368	0.006

Values of chi-square and of likelihood ratio (Table 4.21 a) as measured from the collected information reveal that there exists a statistically significant association between growth orientation of firms and the number of workers hired by them.

Cross-tabulated information (Table 4.21 b) shows that most of the high-growth oriented firms of the industry are medium and large size firms. Only 2.5 percent are those high-growth oriented firms which are employing 10 workers. Another 2.5 percent are operating with 11-15 workers; and 10 percent are carrying out their operations with 21-50 workers. Another 10 percent are operating with 51-90 workers. 7.5 percent are identified as having 91-150 workers, 5 percent with 151-200 workers and another 5 percent are found to be operating with 351-450 workers.

Considering the low-growth oriented firms, 15 percent are those which have 10 workers. 2 percent have 11-15 workers. 17.5 percent firms are operating with 16-20 workers. 7.5 percent have 21-50 workers. Another 7.5 percent have 51-90 workers. Only 2.5 percent are undertaking their production by employing 91-150 workers. However, 2.5 percent firms are those low-growth oriented firms which employee less than 10 workers.

This shows that as the firm size grows more growth oriented it tends to become.

4.17 Business Choice and Firm's Growth Orientation

Those entrepreneurs who tend to start a business as personal liking and those who enter into a business having that as a family business are more likely to make efforts and grow.

To analyze this in the context of Pakistan's fan industry it is conjectured that ***reason for choosing a business and the growth orientation of a firm are associated.***

Table 4.21 b
Number of Workers and Firm's Growth Orientation

Level of Growth Orientation	<10	10	11-15	16-20	21-50	51-90	91-150	151-200	351-450	Total
High-Growth Oriented	0 (0%)	1 (2.5%)	1 (2.5%)	0 (0%)	4 (10%)	4 (10%)	3 (7.5%)	2 (5%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	1 (2.5%)	6 (15%)	2 (5%)	7 (17.5%)	3 (7.5%)	3 (7.5%)	3 (2.5%)	0 (0%)	0 (0%)	23 (57.5%)

Source: Authors' Calculations

Table 4.22 a
Statistical Measures: Business Choice and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	2.913	0.713
Likelihood Ratio	3.670	0.598

The values of chi-square and of likelihood ratio show that in case of the fan industry, statistically, there does not exist significant association between the growth orientation of firms and entrepreneurs reason of choosing the fan making business.

Cross tabulated information (table 4.22 b) shows that 25 percent are those high growth firms which had fan making as family business. 7.5 percent were attracted by market profits. 2.5 percent opted for this business due to the attraction of market profits and having it as family business. Another 2.5 percent started this business as their personal liking i.e. had the passion for the fan making business. Remaining 5 percent are those high-growth oriented firms which opted for this business due to some other factors.

As far as low-growth oriented firms are concerned, 27.5 percent are those who came into the fan industry as members of the fan making family. 12.5 percent started this business as attracted by market profits. 7.5 percent entered into this industry due to the attraction of market profits as well as having it as a family business. 2.5 percent started this business by chance and remaining 7.5 percent are those low-growth oriented firms which entered into the industry due to some other factors.

It shows that though a large number of firms in the industry have family-business background but that factor does not play a significant role in determining the growth orientation of firms.

4.18 Access to Raw Materials and Firm's Growth Orientation

For a growth orientated firm availability and access to raw material is of vital importance. Then better quality raw material allows a firm to manufacture better quality products and target more and better customers by penetrating into newer markets.

It is posited that ***access to raw material and growth orientation of a firm are associated.***

Table 4.22 b
Business Choice and Firm's Growth Orientation

Level of Growth Orientation	Family Business	Market Profits	Family Business & Market Profits	By Chance	Special Liking for Fan Business	Other Factors	Total
High-Growth Oriented	10 (25%)	3 (7.5%)	1 (2.5%)	0 (0%)	1 (2.5%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	11 (27.5%)	5 (12.5%)	3 (7.5%)	1 (2.5%)	0 (0%)	3 (7.5%)	23 (57.5%)

Source: Authors' Calculations

Table 4.23 a
Statistical Measures: Access to Raw Materials and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	1.597	0.450
Likelihood Ratio	1.957	0.376

Values of chi-square and of likelihood ratio (Table 4.23 a) as computed from the gathered information show that there is not any statistically significant association between firm's growth orientation and access to raw material.

Table 4.23 b
Access to Raw Materials and Firm's Growth Orientation

Level of Growth Orientation	Easily Available	Shortage	Shortage in Peak Season	Total
High-Growth Oriented	10 (25%)	1 (2.5%)	6 (15%)	17 (42.5%)
Low-Growth Oriented	16 (40%)	0 (0%)	7 (17.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.23 b) reveals that 25 percent are those high-growth oriented firms which are found to have easy access to raw martial, 2.5 percent are found to be facing shortage of raw material and 15 percent are identified to be facing shortage only in the peak season. 40 percent are those low-growth firms which are identified to have easy access to raw material and remaining 17.5 percent are found to be facing shortage of raw material in the peak season only. This shows that the availability of raw material does not determine the growth orientation of firms in the industry.

4.19 Market Share of Firm and Firm's Growth Orientation

As market share of a firm grows, it keeps on expanding for it expects to have a glowing future.

It is posited that ***status of market share of a firm and its growth orientation are associated.***

Table 4.24 a
Statistical Measures: Market Share of Firm and Firm's Growth Orientation

Statistics	Value	Level of Significance
Chi-Square	12.804	0.005
Likelihood Ratio	16.452	0.001

Values of chi-square and of likelihood ratio show (Table 4.24 a) that there is statistically significant association between the trend of market share and firms' growth orientation in the industry.

Table 4.24 b
Market Share of Firm and Firm's Growth Orientation

Level of Growth Orientation	Increasing	Decreasing	Constant	Increasing at a Lower Rate	Total
High-Growth Oriented	15 (37.5%)	0 (0%)	0 (0%)	2 (5%)	17 (42.5%)
Low-Growth Oriented	8 (20%)	6 (15%)	4 (10%)	5 (12.5%)	23 (57.5%)

Source: Authors' Calculations

Cross-tabulated information (Table 4.24 b) shows that 37.5 percent are those high-growth oriented firms which are experiencing an increase in their market share and it is increasing at an increasing rate. 5 percent are facing an increasing trend in their market share but it is increasing at a lower growth rate. 20 percent are those low-growth oriented firms which are found to be experiencing an increase in their market share at an increasing rate. 15 percent are found to be facing a decline in their market share. 10 percent are found to be facing no change in their market share and 12.5 percent are experiencing an increase in their market share but at a decreasing rate. This shows that a significant number of high-growth oriented firms have an increasing trend for their market share.

II- Dynamics of Growth Oriented Firms: Qualitative Dimensions

A. Capacity Utilization of Fan Making Firms

Discussions with entrepreneurs highlight that the fan making firms are not operating at full capacity. Across industry, firms of varying sizes have diverse reasons for not operating at full capacity even in the presence of un-met demand for their products. Most significant reasons shared by them are:

Financial Constraints: Firms, especially small and medium, do not have much finance to purchase raw material in bulk to increase their level of production. The practice for purchasing raw material is that it is mostly acquired on advance payment basis. The entrepreneurs do not approach banks for loans as they are hesitant of banking procedures which they consider a hassle. Main source of finance after personal sources is family and friends. On the other hand, banks are also generally hesitant in extending loaning facility to such firms which do not properly maintain their financial statements to meet the requirements of the banking procedures.

Skilled Labour: The skill level of workers engaged in the industry is not very high. Most of the workers have learnt technical skills under the conventional *Ustad-Shagird* system. There are very few formally trained workers. This bars the workers' ability to work more efficiently. Though Fan Development Institute is established but it is not approached for enhancing the skills of the labourers. The main reason is that Fan Development institute (FDI) is not found to be efficient enough in training workers according to the needs of the industry. Absence of much skilled labourers also discourages the firms to introduce better technology machines as lower level of skills is not compatible with technically advanced machines. It implies that if by introducing new and high-tech machinery necessary condition for growth through technological advancement is met, even then sufficient condition, which is skilled labour, is not fulfilled.

Advertisement: Ability to advertise has been identified as a very significant feature for underutilization of capacity of firms as they are not able to promote their products. Small and Medium size firms do not have that much financial capacity to fully and innovatively advertise, which the large size firms have. Therefore, small and medium size firms are unable to generate much demand for their products through advertisement thus are unable to operate at their full capacity.

Export Procedures: Some of the small and medium size firms do not have the ability to understand the export procedures so they just concentrate on local market. There option to operate in other (international) markets is constrained by their inability to understand the export procedures so they are not able to increase their production range to sell in other markets thus are operating at below full capacity.

Behaviour of Entrepreneurs: Some firms are managed by such entrepreneurs who are satisfiers instead of maximizers. It implies that the absence of entrepreneurial spirit to expand is another main cause for the firm to operate at below full capacity.

Increasing Number of Firms: Initially, all the fans were made in nearly the same design and pattern, so design-quality-price competition among firms was not much highlighted as is today. With the passage of time and emergence of branded and non-branded firms and each firm having its own / different design (though it may be copied); competition has increased. Now firms specialize in few designs and types of fans. They are unable to specialize in all types and designs of fans. Since same fan is produced by several firms with their own brands however technical / internal structure of their products is approximately same. The firms that operate in this segment of the market are small and medium size firms and not large. This segment (low quality) is shared by a large number of firms and few or single firm is not able to capture a larger portion of the market alone and demand for the market is met by many firms. Hence, the firms are unable to produce at full capacity for they are addressing to a comparatively smaller number of customers.

Production Pattern: Another practice prevalent in the industry is that firms, typically small and medium, produce only that much which is ordered to them. They do not go for producing more (extra) and pile up the stock because there is great risk involved on account of the price fluctuations of both inputs and outputs.

International Competition: Initially, only a few firms were operating in the international market and now more firms have entered. Since market is now shared by many firms and due to price competitiveness demand for the products of some fan firms has declined pushing them to reduce their output a bit.

Selling Practices: Firms may not produce more as they shall have to sell on credit. Since the recovery is not that much satisfactory (too much risk involved), so firms reduce their production and just concentrate / operate in secure markets.

CHAPTER 5

CONCLUSIONS

On the basis of the research study, following conclusions are drawn.

It is increasingly recognized that small and medium enterprises, as micro engines of growth, play an important role in economic development by generating economic activities at small scale. By contrast the large size firms undertake economic activities comparatively at large scale. SMEs are found to constitute a major portion of the industrial landscape of an economy. However, they cannot operate efficiently in isolation from the large size firms and the socio-economic factors which determine the business environment to provide a platform for operations to these active and at times passive actors in the economic structure.

This research, through empirical estimations, assessment and discussion, has evaluated the growth dynamics of small, medium and large enterprises operating in the fan industry of Pakistan. In view of the findings, generated through a sample of forty (40) firms; an effort has been made to analyze the industry by highlighting certain dimensions which can be indicative of broader patterns and trends. The research, using a list of indicators representing entrepreneurial competencies and firms' characteristics, investigates performance patterns of fan making firms. It also probes, how various factors determine industrial perceptions to formulate the intentions of entrepreneurs which in turn determines the level of growth orientation of firms.

Fan industry which belongs to the category of light engineering sector, its presence in Pakistan can be traced to pre-independence times. Initially, the industry established its roots in the districts of Gujranwala and Gujrat; metal working hubs of Punjab Province. Later on some units were established in Lahore and Karachi as well. Production activities of firms which are a blend of manual and machine based processes range from very simple crude methods to the use of sophisticated and comparatively high-tech machines. In the absence of significant government support, growth of the industry is attributed to the entrepreneurial spirit which on the basis of personal initiatives of entrepreneur has enabled the firms to operate

efficiently and become competitive both in the domestic and international markets. Thus the industry not only caters to the needs of the domestic markets but is also a source of foreign exchange earning for the economy.

Industrial observations and review of literature suggest that an industry specific classification criterion for determining the firm size (small, medium and large) is needed which must take into consideration the characteristics of firms operating in the industry and must not be an indicative of firm's size just on the basis of indicators like number of workers or sales volume. For analysis, a multidimensional construct '*Size of Firm*', mainly comprising the number of workers, output range and the number of machines held by the firms, serves this purpose. Other size related characteristics to comprehend the shades of variation within and across the firm size categories are: the income groups targeted by firms, types of markets being served (local and international), outsourcing practices, products diversification, R&D practices, product designing activities, technological level of firms, product testing practices, nature and sources of skills acquisition, technological upgradation over time and advertisement practices.

The study has raised some questions to analyze the perceptions of entrepreneurs about the future of the industry. Findings illustrate that entrepreneurs are optimistic about the future developments of the industry and so they are about the performance of their ventures. They are hopeful to face an increasing demand for their products in future as the demand of fans is increasing both in the local and international markets.

The investigations about entrepreneurial competence reveal that most of the firms are managed by educated entrepreneurs though the level of education varies across firms. New generation of entrepreneurs is better educated as compared to the older generation. However, the older generation is better equipped with technical skills as compared to the new generation which is more equipped with managerial skills. Most of the entrepreneurs entered into the industry because it was their family business. Majority of them had some knowledge of technical skills before starting business properly. The main source of initial skills acquisition is informal training (by Family and Mentor). Hardly any of the entrepreneurs learned initial skills through formal sources (vocational / technical training institute). A significant number of entrepreneurs faced technical problems by the time

they started business. This made them to learn and refine their skills. Not only had these who faced problems in the production process at early stages of business but others also acquired skills after starting the business. The skills acquisition practices after starting the business belongs to informal pattern of training. However, the trend of skills refinement and learning is changing as more and more educated entrepreneurs are entering into the industry. These better educated entrepreneurs are much inclined towards attending management and technical training courses for making their firms competitive both in local and international markets.

An assessment about ownership structure of firms shows that in initial stages of establishment most of them were sole proprietorships and partnerships. Hardly any was a private limited company. Presently, majority of the firms are operating as sole proprietorships, a significant number are partnerships and very few are private and public limited companies.

For the establishment of ventures, mostly entrepreneurs depend on their personal resources along with support from family and friends but financial institutions are not a major contributor to this activity. Main reasons for the absence of active role of financial institutions are the complicated procedural requirements which haunt entrepreneurs especially those who are either not educated or less educated.

Findings show that the dominant factor in the planning and designing of firms is entrepreneur's personal efforts which are complemented by the advice of technical labour and friends. However, some medium and large size firms get assistance from well trained engineers as well.

A comparison of sample firms' core activities in the initial year of their establishment and their present status shows that most of the firms were manufacturing both the fan parts and fans. Some were engaged in the production of fans only and yet fewer were making only fan parts. With the passage of time, those who only used to make fan parts also graduated to fan manufacturers and the activity of part manufacturing as an outsourcing practice was transferred to others (existing and new entrants) in the market which shows the presence of linkages between small, medium and large enterprises. Presently, a larger segment of the sample is manufacturing fan parts as well as complete fans. A good number of firms is dealing with fan manufacturing only and not fan parts.

An important finding of the research is that fan making firms also diversify into other related products and varieties of fans. This diversification takes place with the same level and type of skills and competencies which entrepreneurs, labourers and firms have. The medium size category of firms, diversify the most. Few small size firms also diversify. Large firms do diversify but in fewer products. Having major share in the domestic market, they are the leaders but they face challenges in international markets. So instead of diversifying in larger number of products they prefer to focus more on improving their skills and build their capacity in fan making to gain competitive advantage in international markets.

Firms operate in diverse markets depending upon their resource endowment. Most of the firms operate in domestic market only. However, a good number of firms sell their products both in local and international markets. Moreover, geographically large and medium size firms operate in larger number of markets as compared to the small size firms. Small size firms mostly target the markets adjacent to the industry thus their geographical coverage is limited as constrained by the resources.

Another finding of the research is that price and quality of products are found to be the most significant factors for determining the success of firms. Presently, advertisement is also gaining fashion in the industry but it is not reported to be as important an element of success as are price and quality of products. However, they are all independent in terms of pricing decisions; a typical characteristic of monopolistic market structure.

Getting certified for better management of firms through proper documentation and good managerial practices is becoming common in the industry. Firms also get certified to meet the requirements of some international markets which do not permit entry without getting certified.

An analysis of firms' technological capabilities reveals that over the years, firms have been growing so has been the number and nature of machines held by them. Presently, most of the firms tend to introduce better technology machines which have greater capacity to produce products both in terms of numbers as well as quality. Manufacturing activities are not completely machine based, but are both manual and machine oriented. However, before introducing technologically more advanced machines they have to take into consideration the skills level of workers who

are to operate these machines. It implies that for the success and growth of firms it is not enough that firms introduce better technology machines but sufficient condition is the presence and access to skilled labour.

Findings related to the workers involved in the industry show that most of the workers engaged by the firms are on seasonal basis. However, it is the large and medium size category of firms which engage workers on permanent basis, but not all the workers. The skills acquisition of workers is mainly through informal sources. As far as the salary structure is concerned, seasonal workers are paid on per-piece production basis.

The research suggests that R&D activities which help firms to innovate by improving the quality of their products, are typically a characteristic of few firms in the industry. It is only the large size firms and few medium size firms which undertake R&D on regular basis and tend to introduce new designs of products. Others are found to be imitators. Though the extent and nature of this exercise varies across firms but still this practice is gaining significance for firms to become competitive by developing and enhancing the features of their product. This R&D exercise is at times based on the personal initiatives of entrepreneurs and at times it is consumer driven. As the nature of product demanded changes so does the extent of R&D.

The quality checking systems for product testing are in operation and are a combination of both the manual monitoring as well as machine based checking. Fan testing labs are available but they are under-developed. It is only the large size firms which have fully equipped labs and satisfy the criterion of international testing standards.

Another observation of the research findings is that there is no unified price of the products in the industry. Having monopolistic characteristics; fan making firms charge the price of their product as they want to but surly keeping into consideration their competitors. No authority actively monitors the pricing practices of firms in the industry and it is embedded in the nature, type and quality of the products which is much related to the firms' size.

Empirical estimations which make the final part of the research are done with the determination of the 'level of growth orientation' of firms and its interaction with other factors. Some of the developed hypotheses are

validated by the primary information on the fan industry whereas some do not find support from the data. A low-growth oriented firm is characterized by meager intentions to expand. It operates in the comfort zone which is characterized by lesser competition and having lesser challenges for firms' survival. On the contrary, a high-growth oriented firm tends to take more and more initiatives and expand its operation. It prefers to face competition thus by establishing and strengthening its competencies on the basis of competitive advantage, strives to out compete others to become an active and major player in the industry.

The findings support the hypothesis for *firm size* and its level of growth orientation. It suggests that as the firms in the industry grow in size, entrepreneurs take initiatives to become competitive. They pool up resources and introduce technological advancements to meet the needs of their expanding venture. Such intentions tend to make the firms high-growth oriented on the basis of their expansion plans. These expansion plans generally comprise upon activities like introduction of new and technologically advanced machines, gaining of certification to meet the needs of targeted markets, undertaking R&D activities to introduce newer and distinctive products, etc.

Contrary to our hypothesis is the association between *type of ownership* and growth orientation of firms. This shows that entrepreneurial intentions, to set the pace of growth orientation of firms, are not associated with the nature of ownership of firms in the industry.

Talking about the *competence of entrepreneurs*, education of an entrepreneur and firm's growth orientation has been identified to be associated as most of the growth oriented firms in the industry are managed by educated entrepreneurs. An interesting result of our estimations is the lack of significance of association between *entrepreneurs' technical skills competencies* and firm's growth orientation. Entrepreneurs' initial knowledge about technical skills and their skills acquisition during business are not significantly associated with growth orientation of firms. This shows that growth orientation of a firm is not much affected by the skills of an entrepreneur. A possible interpretation of our findings is that if entrepreneurs lack skills and their firms perform well and tern out to be high-growth oriented, they fill the skill gap by hiring skilled labour and managers.

As far as the growth orientation of firms and *initial sources of finance* are concerned, the empirical results do not support the hypothesis. This suggests that initial endowment of resources does not set the pattern of growth orientation for firms in the industry.

Firm based characteristics for which our data supports the hypotheses are: output range, product quality and the type of market served. These are all found to be significantly associated with growth orientation of firms. The research suggests that type of market being served determines the quality of product to be produced which in turn enables the firm to operate in a certain range of output depending upon its size and capacity. As these determinants change so does the entrepreneurial intentions to expand the venture and thus the level of growth orientation of firms in the industry.

As far as the *technological competence of firms* is concerned, data validates the developed hypotheses. Significant association has been observed between the level of growth orientation of firms and their current number and nature of machines, entrepreneurs' intentions to increase the number of machines and the nature of machines to be purchased. All these empirical findings are in line with our expectations. This shows that the current potential of firms sets the pace for firms to determine their level of growth orientation and expand accordingly. This allows the capable firms to move high on the trajectory of growth orientation and thus make a leap from one class of firms to the other (small to medium and from medium to large). However, the practice of *technological up-gradation* is not found to be significantly associated with growth orientation of firms. This suggests that sources of technological upgradation vary much across the firms. At times consumer's demand overpower personal intentions to change the technological base of the firm, and at times both jointly cause the upgradation of technology yet at times multidimensional forces cause this technological upgradation to take place in the industry.

Research and development activities are found to be significantly associated with the growth orientation of firms. This suggests that those firms which intend to expand; continuously keep on doing R&D so as to innovate and capture that portion of market opportunities which are not addressed by others.

Data validates the hypothesis developed for the practice of *product designing* and getting *certified for standardization.* High growth oriented

firms are found to be designing their own product so as to keep a distinction in the market from their competitors. Such firms also tend to get themselves certified to operate in those markets which cannot be targeted by others who don't get certified and thus reap the benefits as being a part of those who hold certifications.

Current market share and future demand forecast of firms are also found to be significantly associated with the level of growth orientation of firms in the industry. Future demand forecast depends not only on predictions but also on the present status of the firm i.e. its market share. The more successful a firm is currently and has a satisfactory share in the market and the more its product is demanded better shall be chances for it to face an increasing trend for its product in the future. This suggests that the better the firms operate currently in the industry the more growth oriented they tend to be and face a growing demand for their product.

Empirical findings show that as the firms in the industry become more growth oriented the more they generate the *demand for labour.* This supports the view that as the intentions of entrepreneurs develop to expand their venture they tend to increase the number of machines so their need for hiring more workers also emerges.

Reasons for choosing the fan making business and growth-orientation of firms are not estimated to be associated with each other. Most of the firms in the industry are family businesses which allow the entrepreneurs to undertake an economic activity but this factor does not explicitly formulate their intentions to make their venture a high-growth oriented one.

The findings suggest that it is not only the entrepreneurial intentions which shall help the firms to become high-growth oriented but the skills of workers is also required to match this pace of intentions which would result in an increase in number and nature of machines. Skill development, both of entrepreneurs and of workers is dire need of the industry. For this purpose, active government support is needed to ensure that the industry related established technical training institute (Fan Development Institute) operates in true letter and spirit. Since entrepreneurs and labourers hesitate to come to the institute as they do not want to waste their time by getting training only at the cost of their economic activities, the institute must hire staff and should launch programmes for on-job training. This shall help to fill the skills gap

prevalent in the industry and would facilitate the process of technological upgradation of the industry.

The establishment of new and up-graded labs to target those international markets that cannot be targeted due to the absence of well-equipped labs to test the products is another need of the industry to be addressed by the government. This can be done by installing the latest testing machinery within the premises of the Fan Development Institute as a common facility.

Since the industry has the potential to export and many entrepreneurs being unable to understand the export procedures miss the opportunity to operate in the international markets, export support desks must be established to ease out the difficulties in understanding the requirements for international markets. This shall help a larger number of firms to sell their products in international markets and generate more foreign exchange.

Raw material bank can be established so as to ensure that raw material of good quality is timely provided to the fan making firms. This shall enable firms to produce comparatively standardized products which can help to overcome the issues of price determination of products along with the quality of products for international market.

Implications for Research

Some aspects of the fan industry evaluated and discussed in the study may be taken up for further research. Although the operational definitions, constructs for determining the size of firms and their level of growth orientation has been initially developed in this research, however further research may contribute to refine these concepts. It would be useful to aim for the development of a more precise but efficient measure for analyzing the performance of the industry from various angles. The element of subjectivity especially needs to be curtailed through further development of measurement methodology. Then it would be useful, if validity of findings is investigated with a larger sample to analyze the issues of the industry in more depth. Particularly, investigations to analyze the dynamics of interaction of internal and external factors affecting firms' performance shall help to have a broader and deeper understanding of reasons behind the patterns observed.

REFERENCES

Abdullah, M.A. (2000). 'Small and Medium Enterprises (SMEs): Some Pertinent Issues', in (M.A. Abdullah & M.I. bin Bakar, eds.) *Small And Medium Enterprises In Asian Pacific CountriesVolume 1: Roles And Issues*, Nova Science Publishers Inc,Huntington, NY, pp. 3-14.

Aftab, K. (2005). 'SME Policy of Pakistan', Regional Convention on Policy Reforms for SME Development in SAARC Countries, Colombo. Available at: http://www.gcu.edu.pk/publications/vc-sme.pdf

Aftab, K. and Rahim, E. (1986). 'The Emergence of a Small-Scale Engineering Sector: The Case of Tubewell Production in the Pakistan Punjab', *The Journal of Development Studies,* vol. 23(1), pp. 61-76.

Aftab, K. and Rahim, E. (1989). "Barriers' to the Growth of Informal Sector Firms: A Case Study', *The Journal of Development Studies,* vol. 25(4), pp. 490-507.

Banuri, S. (2005). 'Development Issues in Pakistan: Unlocking the Secrets of Long Term Sustainable Growth'. Available at: http://www.utdallas.edu/~banuri/sb_cp2_development_eco_pakistan_072005.pdf

Bari, F., Cheema, A. and Haque, E. (2005). 'SME Development in Pakistan-Analyzing the Constraints to Growth', Asian Development Bank, Working Paper No. 3. Available at: http://www.adb.org/Documents/PRM/Working_Papers/wp-03.pdf

Berry, A. (1998). 'The Potential Role of SME Sector in Pakistan in a World of Increasing Trade', *The Pakistan Development Review,* vol. 37(4), pp. 25-49.

Berry, A. and Rodriguez, E. (2001). 'Dynamics of Small and Medium Enterprises in a Slow-Growth Economy: *The Philippines in the 1990s'*. Available at: http://cdi.mecon.gov.ar/biblio/docelec/tb1020.pdf

Bonaccorsi, A. and Giannangeli, S. (2005). 'Why New Firms Never Get Large? Evidence on Post-Entry Growth of Italian New Firms', in (M. Malgarini and G. Piga, eds) *Capital Accumulation, Productivity and Growth,* Palgrave Macmillan.

Burke, A. and Shabbir, A. (2009). 'The Dynamics of Business Creation and Exit in Disequilibrium: The USA 1998-2003'. Available at SSRN: http://ssrn.com/abstract=1353273

Burke, A.E. and Van Stel, A.J. (2009). 'The Entrepreneurial Adjustment Process in Disequilibrium: Entry and Exit when Markets Under and Over Shoot', Tinbergen Institute Discussion Paper No. 09-005/3. Available at: SSRN: http://ssrn.com/abstract=1330752

Colombo, M. G., Delmastro, M. and Grilli, L. (2004). 'Entrepreneurs' Human Capital and the Start-up Size of New Technology-based Firms', *International Journal of Industrial Organization,* vol. 22, pp. 1183-1211.

Farooqi, S. A. and Haroon, M. A. (2006). 'Diagnostic Study: Fan Cluster Gujrat Pakistan'. Available at: http://www.unido.org.pk/cdp-pdf/DS%20Fans%20Final%20june%2028'06.pdf

Fisher, E. and Reuber, R. (2003). 'Support for Rapid-growth Firms: A Comparison of the Views of Founders, Government Policymakers, and Private Sector Resource Providers', *Journal of Small Business Management, vol.* 41 (4), pp.346-365.

Gibson, T. and van der Vaart, H.J. (2008). 'Defining SMEs: A Less Imperfect Way of Defining Small and Medium Enterprises in Developing Countries'. Available at: http://www.brookings.edu/~/media/Files/rc/papers/2008/09_development_gibson/09_development_gibson.pdf

Guo, B. and Ji, D. (2005). 'Dynamics of Industrial Innovation in Developing Countries'. Available at: http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=01559205

Hagedoorn, J. (1996). 'Innovation and Entrepreneurship: Schumpeter Revisited' Available at: http://arno.unimaas.nl/show.cgi?fid=1542

Kaibori, S. (2001). 'Development of Small and Medium-sized Enterprises and Policy Support "Action Guidelines for Tomorrow" for policymakers in transition countries', *Economic and Social Research Institute.* Available at: http://www.esri.go.jp/en/tie/russia/russia7-e.pdf

Kawai, H. and Urata, S. (2002). 'Entry of Small and Medium Enterprises and Economic Dynamism in Japan', *Small Business Economics*, vol. 18, pp.41-51. Available at: http://web.econ.keio.ac.jp/staff/hk/paper/SMEEVO.PDF

Khawaja, S. (2006). 'Unleashing the Potential of SME Sector with a Focus on Productivity Improvements'. Available at: http://siteresources.worldbank.org/PAKISTANEXTN/Resources/293051-1147261112833/Session-3-2.pdf

Klein, P.G. and Cook,M.I. (2005). 'T.W.Schultz and the Human-Capital Approach to Entrepreneurship'. Available at: http://web.missouri.edu/~kleinp/papers/06011.pdf

Lange, T., Ottens, M. and Taylor, A. (2000). 'SMEs and Barriers to Skills Development: A Scottish Perspective', *Journal of European Industrial Training,* vol. 24(1). pp. 5-11.

Mahemba, C. M. and De Bruijn, E. J. (2003). 'Innovation Activities by Small and Medium-sized Manufacturing Enterprises in Tanzania', *Creativity and Innovation Management,* vol. 12(3), pp. 162-173.

McIntyre, R.J. (2003). 'Small Enterprises in Transitional Economies: Causal Puzzles and Policy-Relevant Research', in (R.J. McIntyre, & B. Dallago, eds.) *Small and Medium Enterprises in Transitional Economies,* Palgrave Macmillan.

Nadvi, K. (1997). 'The Cutting Edge: Collective Efficiency and International Competitiveness in Pakistan', IDS Discussion Paper 360, Sussex (UK).

Nam. S. (2005), 'Innovation and SME Development- Korea's Perspective and APEC Cooperation'. Available at: http://www.apec.org.au/docs/koreapapers2/SVII-SN-Paper.pdf

Romijn, H. and Albaladejo, M. (2000). 'Determinants of Innovation Capability in Small UK Firms: An Empirical Analysis', QEH Working Paper Series-QEHWPS40. Available at: http://www3.qeh.ox.ac.uk/RePEc/qeh/qehwps/qehwps40.pdf

Sevilla, Ramon C., and Soonthornthada, Kusol., (2004) 'SME Policy in Thailand: Vision and Challenges'. Available at: http://www.ipsr.Mahidol.ac.th/ipsr/Contents/Books/FullText/2000/25_SME%20Policy%20in%20Thailand%20Vision%20and%20Challenges.pdf

Storey, D. (1994). '*Understanding the Small Business Sector*', London: Routledge.

Szwejczewski, M., Wheatley, M. and Goffin, K. (2002) 'Process Innovation: Lessons from UK Manufacturing'. Available at: http://www.som.cranfield.ac.uk/som/p1403/Research/Research-Centres/The-Centre-for-Innovative-Products-and-Services/Publications

Virtanen, M. (1997). 'The Role of Different Theories in Explaining

Entrepreneurship', Helsinki School of Economics and Business Administration, Small Business Centre. Available at: http://usasbe.org/knowledge/proceedings/proceedingsDocs/USASBE1997proceedings-P109Virtanen.PDF

Wattanapruttipaisan, T. (2002), 'Promoting SME Development: Some Issues and Suggestions for Policy Consideration', *Bulletin on Asia-Pacific Perspectives.* Available at: http://www.aseansec.org/13149.htm

Weinzimmer, L. (2000). 'A Replication and Extension of Organizational Growth Determinants', *Journal of Business Research, vol.* 48 (1), pp. 35-41.

Economics Department, GC University, Lahore. (2004). 'Women Enterprises in Urban Lahore: A Perspective of Income a Groups and Firm Size', Report on GC University-Strathclyde University Higher Education Link Project 2001-04.

Wood, A. M., Watts, H. D. and Wardle, P. (2004). 'Growth-Oriented Small Firms and the Nature and Extent of Local Embeddedness: The Case of a Traditional Metalworking Cluster', *Growth and Change,* vol. 35(4), pp. 419-433.

Web Resources:

http://www.jang.com.pk/thenews/investors/may2003/if.htm

http://www.lib.strath.ac.uk/busweb/guides/smedefine.htm

http://www.pakistan.gov.pk/ministries/industriesandproduction-ministry/media/SMEPolicyDevelopment.pdf

http://www.pakistanbestbrands.com/download-files/Prs-corporate.pdf

http://www.sme.gov.eg/english_publications/issue2_english.pdf

http://www.smeda.org.pk/main.php?id=2

Http://www.world66.com/asia/southasia/pakistan/gujrat/history

APPENDIX- I

Size of Firms as Defined in the Study

A Small Size Firm

Stage	Machines	Employees	Production Range
I	8-10	10 [all seasonal]	800-5,000
II	11-12	11-15 [all seasonal]	5,001-10,000
III	13-15	16-20 [1-2 permanent]	10,001-20,000

A Medium Size Firm

Stage	Machines	Employees	Production Range
I	16-30	21-50 [five permanent]	20,001-50,000
II	31-50	51-90 [20 permanent]	50,001-90,000
III	51-90	91-150 [25 permanent]	90,001-150,000
IV	91-150	151-200 [35 permanent]	150,001-200,000

A Large Size Firm

Stage	Machines	Employees	Production Range
I	151-200	201-250 [50 permanent]	200,001-300,000
II	201-300	251-350 [75 permanent]	300,001-500,000
III	301-400	351-450 [100 permanent]	500,001 750,000

Over All

Category	Machines	Employees	Production Range
Small	8-15	10-20	800-20,000
Medium	16-150	21-200	20,001-200,000
Large	151-400	201-450	200,001-750,000

Note: A firm with less than 10 employees, less than 8 machines and with a production level less than 800 has been categorized as micro.

APPENDIX- II

Determining the Level of Growth Orientation of Firms

Variables	Scores
Firms having Certifications	1 =Yes 0 =No
Intentions to Expand i.e. want to increase the output	1 =Yes 0 =No
Current Method of Production	0 =Manual 1=Manual and Machines Based 2 =Machines Based
Plans to Increase the Number of Machines	1 =Yes 0 =No
New Models of Machines i.e. High-tech / More Sophisticated Machines	1 =New Models 0 =Nil
New Machines -- Local or Imported	1 = Local and Imported 2 = Imported 0 = Local
In-house R&D	1 =Yes 0 = No
From where were the current Machines purchased	1 = Local and Imported 2 = Imported 0 = Local

Score from 7-9 shows that the firm is a high-growth oriented firm
Score less than 7 shows that the firm is a low-growth oriented firm

APPENDIX- III

List of Respondent Firms

1. A.F.C Fans, Small Industrial Estate, G.T. Road, Gujrat.
2. Aahad Fans, 1/26 Dinga Singh Building, Beadon Road, Lahore.
3. Akai Fan, 21-B Small Industrial Estate, G.T. Road, Gujrat.
4. Akbar Fans, Akbar Fans Company, Makkah Colony, G.T. Road, Gujrat.
5. Al-Jamil Fans, Kalara Khasa, G.T. Road, Gujrat.
6. Amin Fans, G.T. Road, Gujrat.
7. Beta Fans, Gujranwala.
8. Bright Star Fans, Gujranwala.
9. Champion Fans, Gujranwala.
10. China Fans, China Engineering Industries, G.T. Road, Gujrat.
11. Climax Fans, Climax Engineering Company Limited Gujranwala.
12. Crown Star Fans, 13-A Small Industrial Estate, G.T. Road, Gujrat.
13. Elahi Fans, Small Industrial Estate, G.T. Road, Gujrat.
14. Fanta Fans, Shahdola Road, Gujrat.
15. G. M Fans, G.T. Road, Gujrat.
16. GFC Fans, G.T. Road, Gujrat.
17. Inayat Fans, Small Industrial Estate, G.T. Road, Gujrat.
18. Indus Fans, 58-A Small Industrial Estate Gujranwala.
19. Khurshid Fans, S.G.S Electrical Company Jalalpur Road, Gujrat.
20. Lahore Fans, Gujranwala.
21. Mehran Fans, Mehran Electric Company, Sector 6-A North Karachi.
22. Mehwar Fans, G.T. Road, Gujrat.
23. Metro Fans, Metro Hi-tech (Pvt) Ltd. G.T. Road, Gujrat.
24. N.B.S Special Fans, Nabi Bakhsh & Sons, G. T. Road, Gujrat.
25. Pak Fans, Wahid Industries, G.T. Road, Gujrat.
26. Pak Punjab Fans, Nazir Industries, G.T. Road, kangriwall, Gujranwala.

27. Palace Fans, Palace Colony, G.T. Road, Gujrat.
28. Plaza Fans, 33-A Small Industrial Estate, G.T. Road, Gujrat.
29. Raheem Fans, Raheem Fans Industry, Small Industrial Estate, Gujrat.
30. S.A Fans G.T. Road, Gujrat.
31. Shaheen Fans, Gujranwala.
32. Starko Fans, U.I. Industries, 183-C Small Industrial Estate, G.T. Road, Gujrat.
33. Subhan Fans, Small Industrial Estate, G.T. Road, Gujrat.
34. Super Asia Fans, Super Asia MDS (Pvt.) Ltd. G.T. Road, Gujranwala.
35. Swiss Fans, Sultaabad, G.T. Road, Gujrat.
36. Tamoor Fans, Small Industrial Estate, G.T. Road, Gujrat.
37. Tarannum Fans, Noor Electrical Industries, G.T. Road, Gujrat.
38. Tata Fans, A-Haq and Sons, Opposite to Sewa C.N.G G.T. Road, Gujranwala.
39. Yadgar Fans, The Yadgar Electric Concern G.T. Road, Gujrat.
40. Yunas Fans, Yunas Metal Works, G..T. Road, Gujrat.

GC University, Lahore

GC University Lahore, Pakistan.
Lower Mall, 1 Katechary Road, Lahore Pakistan. 54000
Tel: +92-342-111-000-010 Fax: +92-429-921 3337
www. gcu.edu.pk